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ART. I. *The Surgical Anatomy of the Ano-Perineal Region.* Translated and abridged from the Surgical Anatomy of VELPEAU. By JOHN W. STERLING, M. D. of New-York.

[Continued from p. 217]

THE ano-perineal region is bounded, anteriorly, by the root of the scrotum; posteriorly, by the extremity of the coccyx; and laterally, by the tuberosities of the ischium. It is of an oval figure, its largest extremity situated behind, and comprises all those parts which are included in the circle of the inferior strait of the pelvis.

Its constituent parts are the following:

1st. The skin; 2nd. The subcutaneous layer; 3rd. The aponeurosis; 4th. The muscles; 5th. The arteries; 6th. The veins; 7th. The lymphatics; 8th. The nerves; 9th. The urethra; 10th. The neck of the bladder; 11th. The rectum.

[The last three divisions being the most interesting of this region, will form the subject of the present translation. The urethra does not exclusively appertain to this region; but as Mr. Velpeau considered it more important to describe it as a whole in relation to catheterism, etc. instead of studying it in parts according to the different regions in which these parts are situated, he deemed it most proper to defer the description of it until he came to the perineal region.—TR.]

9th. *The Urethra.*

This canal is about nine and a half inches in length, and extends from the neck of the bladder to the extremity of the penis: according to *Wathely* and *Ducamp*, it never exceeds this measurement, but we, as well as Mr. *Lisfranc*, have found it attain to eleven inches and three quarters. It is the most important organ of the perinæum, whether we consider it in relation to its functions in diseases, or the frequent operations it requires; and it has also been, for a century at least, the object of unceasing attention and of numerous investigations. *J. L. Petit* first noticed that when the penis is in a prolapsed state, the urethra presents a very distinct double curvature, and in consequence of this idea, he gave to his catheter the form of the letter S. The concavity of one of these curvatures looks upwards, and is met with under the symphysis of the pubis, that of the other is directed downwards, and is situated anterior to this articulation; the latter disappears during erection, or when the penis is raised towards the abdomen by drawing it in a line which would correspond with the ischio-pubic rami, if they were prolonged forwards; and it is from this last circumstance that some have of late endeavoured to maintain that the canal of the urethra is perfectly straight, or nearly so. Mr. *Amussat* has shown that we may, by drawing upon the penis in a certain manner, not only efface the anterior curvature, but also obliterate, in a great measure, that which is under the symphysis of the pubis, so as to render easy the introduction of instruments which are not curved into the bladder. This question had already been decided in the affirmative by *Lieutaud* in his *Medicine Pratique*, and by M. *Montaign*, in his thesis of 1810, when *Gruithuisen* published in the Saltzbourg Gazette of 1813, that straight sounds would readily penetrate into the urinary pouch, and that these sounds would permit the use of diverse instruments for the purpose of breaking down calculi, or of decomposing them by galvanic currents. These facts, however, had fallen into oblivion, when in 1818 or 1820, and subsequently, MM. *Amussat*, *Leroy* (d'Etiolle), and *Civiale*, resumed the question *ab ovo*, and in

such a manner that the former, by his researches upon the urethra and the straight sound; the second, by his lithontriptic instruments, and the third by his brilliant experiments upon the living subject, have succeeded in making this branch of practical surgery one of the most important and interesting of the present epoch.

But let us first examine the urethra in its four portions; afterwards we will resume the consideration of its direction.

1st. The *prostatic portion* is from twelve to sixteen lines in length, and is enveloped by the gland from which it derives its name, so that this is the proper place for examining the latter organ.

The *prostate gland* has the form of a cone flattened upon its posterior surface, its apex turned forwards. It is very small in children, but enlarges with age, and at from eighteen to twenty-five years, its greatest breadth is two lines less than in the man of forty; in old age, and in persons afflicted with diseases of the bladder, its volume is sometimes much greater: its dimensions must be studied with the greatest care, and the surgeon cannot be too familiar with them when he wishes to perform lithotomy. Upon this subject we may examine the thesis of M. *Senn*,* the treatise of *Scarpa* on Lateral Lithotomy, those of M. *Amussat*,† etc. Its greatest diameter from behind forwards, that is to say, from its base to its apex, is sixteen lines; by measuring at different heights, its length gradually diminishes, so that at its most superior part it is not more than four or five and a half lines; by cutting it perpendicularly and transversely near its base, we find that the largest section, through which the canal of the urethra passes, is thirteen or sometimes even sixteen lines from above downwards, and that the dimensions of those which follow, diminish gradually to the apex. But it should be observed, that the circumference of this gland is not exactly circular, and that the urethra does not pass through its centre, so that in

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* Thèse sur diverses espèces de tailles périnéales. Paris, 1825.

† Archives générales de Médecine, Janvier, Avril, 1824

order to have our measurements precisely surgical and practical, it is better to imitate M. *Senn*, and draw different radii from the canal of the urethra to the principal points of the circumference of the prostate: thus, the inferior radius will be six, seven, or eight and a half lines, very seldom more; directly across we find nine and a half lines, and downwards and outwards, the direction in which the instrument must penetrate in the lateralized lithotomy, from ten and a half to twelve lines. The inferior, or posterior surface of the prostate is its flattened portion; it rests upon the anterior surface of the rectum, as far as two inches and a half, or three inches, above the anus; it is separated from this intestine by a thin layer of lamellated cellular tissue only, in which fat is never deposited, so that it is very difficult to avoid wounding the rectum when the lithotome completely divides the posterior half of the prostate; and if it is true, that the section of this gland should never be complete in the sub-pubic operation of lithotomy, if we wish to avoid serious consequences, it will follow that in cutting by the rectum, we will not obtain, without danger, an opening so extensive as by the lateralized or transverse methods. The pubic surface of the prostate is always from six to eight and a half lines distant from the symphysis; its lateral portions are removed from six to eight and a half lines from the ischio-pubic rami, according as we examine it from its superior towards its inferior part, which we may easily determine by recollecting that the transverse dimensions of the gland at its broadest part, are from nineteen to twenty-one lines, and by measuring transversely the arch of the pubes at the points corresponding to the superior, middle, and inferior portions of the prostate, we will find from twenty-one to twenty-three and a half, twenty-five and a half to twenty-six and a half, twenty-eight to thirty lines, so that this body is nearer to the internal pudic artery, the more we approximate to its superior part. Between the symphysis, the rectum, and the pudic artery, there are a great many other parts which more or less immediately surround the prostate: thus, it is enveloped by a more or less distinct layer of fleshy fibres, running in a longitudinal direction, and confounded, as

it were, with its proper tissue; these fibres, which we have frequently followed as far as the bladder, and which appear to us to be an appendage to the muscular tunic of this pouch, become more evident towards the superior portion of the gland, so that above, for example, they are almost the only parts which exist upon the upper surface of the canal of the urethra, and it is doubtless from this circumstance, that M. *Amussat* has said, that the prostate is not perforated by this canal, but that it is merely grooved out for its reception. We must admit, that we have more than once met with the disposition indicated by this anatomist, that is to say, that the glandular tissue terminated upon the sides of the canal, so that the anterior surface of the latter was in immediate contact with the fleshy fibres; but we think that he has gone too far, in drawing from this case a general conclusion: in fact, it is very easy to convince one's-self that the prostate gland, in the majority of subjects, forms a complete circle around the urethra; it is true, that as the canal passes through this circle it lies much nearer its superior than its inferior part, although the contrary is sometimes observed,* which would, moreover, be a very dangerous disposition, as it would then be very difficult to avoid the rectum, except by the transverse lithotomy. In addition to this species of fleshy envelope, the prostate also receives upon its superior surface two small muscular fasciculi which appertain to the levator ani, and are detached from it behind the symphysis of the pubis, descending almost perpendicularly upon the membranous portion of the urethra; they vary in strength in different individuals, and are known in England under the name of the muscles of *Wilson*, (musculus constrictor urethræ): the gland is afterwards enveloped by an almost complete fibrous sheath, which is continuous on the one hand, with the recto-vesical aponeurosis from which it seems to originate, and on the other, with that of the perinæum upon which it terminates after having expanded over the membranous portion of the urethra; finally,

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* M. Senn, loc. citat.

on the outer surface of this aponeurosis we find cellular tissue, which is lax and abundant anteriorly and laterally; very dense posteriorly upon the median line, and much less so externally. The base of the prostate envelopes the neck of the bladder like a cap, at the place where it terminates in the commencement of the urethra; it also receives the vasa deferentia, which touch one another upon the median line where they are about to dip into it; external and posterior to these ducts are the vesiculæ seminales; so that in penetrating into the bladder by the rectum, according to the original method of M. *Sanson*, that is to say, by opening the bas-fond of the bladder, at the same time that we incise more or less the basis of the prostate gland, we almost always cut one of the seminal ducts, and frequently the vesicula, for it is scarcely possible that any surgeon can be sure of not deviating half a line from the median line when dividing the anterior paries of the rectum.

Now this accident, which does not appear serious to MM. *Sanson* and *Vacca*, is considered by *Scarpa* † so dangerous as to induce him to reject the recto-vesical lithotomy. In fact, it is proved, from several cases, that a division of the excretory canals may be followed by their obliteration and atrophy of the gland; and, with respect to the testicle in particular, Lapeyronnie has related an example which shows that an obliteration of the vas deferens may occasion the loss of the seminal gland. It is necessary to observe here that the ejaculator ducts enter the prostate in such a manner from behind forwards, that they pass through almost the whole length of this gland; so that in the operation of lithotomy by the rectum, one of them will necessarily be divided, whatsoever precautions we may take, and two serious consequences may then result from it; viz. inflammation of the testicle, an inflammation which will be transmitted to it by the duct which unites it to the canal of the urethra; or the cicatrix will alter the relations of the divided extremities of the seminal ducts, and their separate obliteration will be followed by sterility, and perhaps by atrophy of the testicle: a result which may also succeed

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* Laggio di'osservazioni sul tagglio retto-vesicale, etc. Pavia, 1823.

the former case. Furthermore, every one knows how common it is to see a swelling of the scrotum supervene during gonorrhœa, the use of bougies, catheters, and after the operation of lithotomy even by the lateralized method.

In some subjects the posterior border of the prostate consists of three lobes, so that, if the middle tubercle should become tumefied, it will push the neck of the bladder from below upwards, so as to flatten and even obliterate it, this, according to Sir *E. Home*, is one of the most frequent causes of the retention of urine of old men, unattended with disease of the urethra; but we think that this surgeon has greatly exaggerated the importance of the prostate in his investigation of the diseases which he attributes to this gland. If it is true, as he pretends, as well as Mr. *Serres*, that it is developed by two lateral lobes, to which at a later period a third is added, we conceive that the two former may unite below the canal of the urethra only, and give rise to the disposition pointed out by M. *Amussat*; but if, on the contrary, they first become conjoined above the urethra, this canal will then be situated much nearer the rectum. However this may be, the part which this organ performs in relation to the operation of lithotomy, deserves much more attention than has been paid to it until the present day, and in this respect we cannot examine it too attentively. Its form, exact dimensions, relations, and density cannot be too well known by the operating surgeon.

An important rule, from which we should never deviate when we divide the prostate from the urethral canal to its circumference, consists in not prolonging the incision, in any case, beyond its periphery; for if we neglect this precaution, as the neck of the bladder is divided to a greater or less extent, and as the lips of the wound of the prostate are no longer maintained in contact by the solid tissues which surround this gland, or by a vinculum of its parenchyma of a certain thickness, they remain separated, so that the urine can readily become extravasated into the circumjacent cellular tissue. Under such circumstances we have two things to apprehend; urinary fistulæ, or inflammation of the more or less abundant cellular tissue, which surrounds the prostate and the neck of the bladder. The

latter accident is the most formidable and frequent: this alone destroys more patients than all the others combined; when death takes place in the course of the first weeks which follow the operation, we sometimes find its cause in peritonitis; but generally this phlegmasia is only an effect of the more or less extensive inflammation of the cellular layer which exists between the prostate and the rectum, between the prostate and the pubis, between the perineal fascia and the pelvic aponeurosis; a cellular layer which is also prolonged between the peritoneum and the bladder, so as to enter into the fascia propria. It is sufficient to examine attentively the bodies of those who perish in consequence of the sub-pubic lithotomy, in order to be convinced of the correctness of what we have advanced; and Dr. *Key* perfectly coincides in this opinion,* consequently, all the efforts of the surgeon should tend to divide this gland in its greatest possible extent without ever passing completely beyond its circumference. Now, according to this principle, by what method can we obtain the greatest advantages? The question is easily solved; by the apparatus major, the incision did not extend so far as the posterior part of the prostate, it is true; but then the origin of the urethra was not divided, and it afterwards became necessary to dilate or lacerate, or the vesical opening would necessarily remain very small, notwithstanding the extent of the wound of the external soft parts. By following the method of *Foubert* we avoid the prostate; we penetrate through the great ischio-rectal cellular space, and thereby incur the dangers of which we have just spoken. By the lateralized† method, if we imi-

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*A short Treatise on the section of the prostate gland in Lithotomy. London, 1824.

† It may not be improper to define here what the French understand by the Lateralized and Lateral operations of Lithotomy.

Appareil Lateralizée (*Lateralized apparatus*). This method, which is almost exclusively adopted at the present day, except in those cases in which the excessive magnitude of the stone obliges us to cut above the pubes, this method, I say, consists in making upon the skin of the left part of the perineum, an incision which is begun at about an inch above the anus, and

tate *Boyer*, that is to say, if we withdraw the lithotome transversely, by applying the back of its sheath against the right pubic ramus, in order to avoid the rectum on the one hand and the pudic artery on the other, it would be dangerous to give more than ten lines and a half to the incision, since the transverse radius of the gland presents but nine, and only two or three lines more can be added for the urethra. By the operation of *Cheselden*, on the contrary, whether we adopt the modifications recommended by *Ledran*, *Pouteau*, *Moreau*, *Lecat*, *Frère Cosme*, &c. as we divide the gland parallel to its greatest radius, that is to say, obliquely outwards and downwards, it is evident that we would obtain two lines more without danger; so that in this point of view the lateralized method, properly so called, should have the preference. By the recto-vesical method, which only deserves this name when we divide the *bas-fond* of the bladder behind the prostate, we see that this gland, in the other process, will admit of an incision only eight lines and a half to the vesico-urethral neck, notwithstanding a great part of the membranous portion of the urethra, and the whole length of the prostatic portion may be divided; so that far from obtaining, by this method, a very large opening, it will, on the contrary, always be smaller than by the other processes, whenever the incision does not extend beyond the gland upon the neck of the bladder*. As it res-

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terminates at the middle of a line which would be drawn from the anus to the tuberosity of the ischium; in dividing the adipo-cellular tissue which fills the space between the erector penis and accelerator urinæ muscles; in afterwards incising the transversalis perinæi, and the anterior fibres of the levator ani muscles, the membranous portion of the urethra, the neck of the bladder, and the left lateral part of the prostate, &c.

Appareil Lateral (*Lateral apparatus.*) This method, invented by Foubert and Thomas, is distinguished by an incision made in the perinæum along its external part, and by the section of the lateral part of the body of the bladder without touching either its neck or the urethra, &c. Dictionnaire de Medecine, tome 13. (Trans.)

* The foregoing sentence will be rendered less obscure by stating that there are two methods of performing the recto-vesical operation: in the first, we divide the anterior, inferior, and median part of the rectum, the membranous portion of the urethra, the neck of the bladder, and the prostate;

pects the lithotomy of *Celsus*, according to the method of *Dupuytren*, it is evident that we may obtain by it ten and a half lines on each side, since the two blades of the instrument follow, in coming out, the greatest radius of the gland; to this we may also add the breadth of the canal of the urethra, which may extend to four or five lines; besides, as this double oblique incision circumscribes a triangular flap, including the ejaculator canals, the verumontanum, and the inferior half of the prostatic portion of the urethra, we conceive it possible, rigorously speaking, to obtain a wound about two inches in extent without serious consequences. Finally, in operating as advised by *Thompson* in 1806, and *Dupuytren*, that is to say, that if, after the lithotome or bistoury has entered into the bladder, the surgeon, instead of drawing it downwards and outwards, directs its cutting edge, on the contrary, upwards towards the arch of the pubis, thereby dividing the superior part of the prostate and of the neck of the bladder, we may readily perceive that he will incur the inconveniences arising from the lateral method of *Foubert*, and that the urethra, open above and below, will present two very broad slits (*boutonnieres*) without actually rendering the extraction of the foreign body more easy, since the superior radius alone of the gland will be divided. We will now pass in review the different parts of the canal of the urethra.

That portion of the canal which is included in the prostate gland is infundibuliforme at its point of union with the bladder; a line or two anterior to this it is a little narrower; it then expands, and again becomes contracted at the commencement of the membranous portion. These peculiarities are most remarkable upon its inferior paries. The neck of the bladder was for a long time supposed to be a sphincter by anatomists, but surgeons of the present day generally deny that it performs this office; Mr. *Amussat*, however, by his

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in the second, these lasts parts are avoided, and the instrument merely cuts through the parietes of the intestine and the bas-fond of the bladder which is applied against it, (Vide Dictionnaire de Medecine, tome xiii. p. 221. (TRANS.)

interesting researches, has again attempted to make it perform a very important part in relation to catheterism. This anatomist supposes that there exists at this point a perfect valve, in which we sometimes meet with transverse fleshy fibres, and against which the beak of the catheter not unfrequently strikes. From our own investigations we are induced to say that this valve, called *pyloric* by M. *Amussat*, does not in reality exist, at least in most individuals; but that the point of origin of the urethral canal is here raised by the posterior margin of the prostate, and that all its membranes, although not disorganized, present a greater degree of thickness at this point than elsewhere: in the middle of the species of excavation which exists between this contraction and that which is anterior to it, we observe the urethral crest, or verumontanum. This eminence, situated upon the median line, divides the inferior paries of this canal into two equal portions, over which the extremity of the catheter must glide before it reaches the bladder; and as the mucous membrane in this place is very thin, and the excavation sometimes of considerable depth, it becomes necessary, in order to avoid making an artificial passage, to keep the beak of the instrument against the superior wall of the urethra. Mr. *Lisfranc* says that he has seen this excavation, in some subjects, as much as three or four lines in depth. The crest itself is an essential organ, and requires much attention during the employment of bougies, the catheter, and especially when we introduce caustic into the urethra, because its irritation is very readily transmitted to the testicle by the vas deferens. It terminates about ten lines and a half anterior to the neck of the bladder, where it forms a kind of tubercle, upon the middle of which we observe the mouths of the ejaculator ducts,*

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* The inferior extremity of the vesicula seminalis and of the vas deferens terminate in an extremely narrow duct of some lines in length, which we call "*canal ejaculateur*," (*ductus ejaculatorius*). This duct converges from behind forwards, and from above downwards, towards that of the opposite side, penetrates into the substance of the prostate, and opens into the urethra immediately by the side of the latter in the middle of the verumontanum. (Meckel. Tome iii. p. 360.) (TRANS.)

and upon its sides, the orifices of the excretory ducts of the prostate are arranged in two rows, like the letter V. the point of which is turned forwards.

It is not very unusual to see this tubercle depressed at its centre, in which cases it is supposed that the extremity of the instrument, which we are endeavouring to pass on to the bladder, may become insinuated into it, a circumstance which would not fail to lead to somewhat serious inconveniences in consequence of the læsion of the seminal ducts. But if it is true that this obstacle is sometimes met with, since Mr. *Lisfranc* has seen several cases in which a catheter of large calibre might be very easily introduced into this cul-de-sac, yet it must be admitted that the difficulty more frequently arises from its being stopped in the bottom of the lateral sinuses. The verumontanum, in prolonging itself backwards to form the vesical uvula (*luette vesicale**), sometimes expands and gives origin to two small lateral folds which are concave anteriorly, and which then actually present the appearance of two very thin and almost indistinct valves. May not these folds have imposed on M. *Amussat?* Be this as it may, it is easy to comprehend that if from some cause or another they should be developed more than usual, they might lead to considerable difficulties in the introduction of the catheter. As the verumontanum passes towards the membranous portion, that is to say, forwards, it now and then presents a disposition similar to the preceding; but then the concave margin of the fold is directed forwards; neither does this appear to be very rare, for we have met with it three times, and it is delineated in Langenbeck's Treatise on Lithotomy, published in 1802.

This portion of the urethra, being enveloped by the prostate, is generally less extensible below than above, and the difference in this respect is very remarkable, especially in those

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* *Luette vesicale*, Lieutaud has given this name to a small tubercle situated at the inferior part of the neck of the bladder, corresponding to the anterior angle of the vesical trigonum. It is sometimes almost indistinct, at others more strongly marked, etc. Dictionnaire de Medicine, Tome xiii. (Tr.)

subjects in whom the gland does not form a complete circle around the canal: then the superior wall is thick, muscular, very strong, and its extensibility permits us to obtain a considerable dilatation for the extraction of the stone without laceration; so that it is very difficult to make a false passage by following this superior paries, whereas it is not so with respect to the inferior portion. When the canal is reduced to its simple elements, i. e. when it is divested of the prostate, its thickness above is scarcely changed; its inferior portion, on the contrary, is then very thin, and consists almost solely of the mucous membrane covered by a thin layer of fibrous tissue, which layer is a little thicker in the situation of the two contractions mentioned above. In fine, it seems that the prostatic portion of the urethra is merely a simple prolongation of the bladder, between the membranes of which the prostate is developed in such a manner that it derives a sheath from the muscular tunic, whilst its inner surface is lined by the mucous membrane covered by its fibro-cellular tissue.

In the adult, the prostatic portion of the canal of the urethra is so large or dilatable, that we may introduce into it, from the bladder, the extremity of the indicator without producing any laceration, as *Deschamps* and M. *Carcassonne* have already remarked; it will always stop, however, at the anterior contraction, which we have never been able to penetrate in this manner; whence it follows that, in the extraction of calculi, we may always rely upon five, six, seven, and even eight and a half lines of dilatation in the posterior part of the urethra. In the child, this portion is always raised more than in the adult, because the bladder, being more approximated to the umbilicus, tends to draw it behind the pubes. In women during pregnancy, the same phenomenon is produced by the growth of the uterus, and so also in man when the rectum is loaded with fæces. It must be observed, however, that this elevation, and the curvature which results from it, are much less than is generally supposed. M. *Amussat* has, in fact, demonstrated that the latter may be almost completely removed by drawing upon the penis in such a manner, as to make it describe with the fore part of the pubes an angle

of about forty degrees. By so doing, the prostate is drawn under the arch of the pubes, and the posterior part of the canal, which was a little more elevated, is then found on a level with the *bas-fond* of the bladder, so that a straight instrument passes with the greatest facility into this cavity, and it permits us to introduce those of a much larger size than if they were curved; to overcome obstacles with greater facility, because we can always rotate these straight rods upon their axes as we propel them onwards; to effect a considerable dilatation, and thereby be able to pass catheters of a very large calibre, and every variety of instrument for the purpose of breaking down and extracting calculi. To us it appears that this new discovery must be fruitful in advantageous results, and the period perhaps is not remote when the major part of calculous individuals will be cured without the necessity of cutting into the perinæum; we know, moreover, with what zeal, with what ardour, *MM. Amussat*, *Leroy* and *Civiale*, are engaged in bringing to perfection the lithontriptic processes devised from this idea. The interesting work of Dr. *Key* on lithotomy, after the method of *Cheselden*, is founded upon the same principle; and we observe, from the elegant engravings which accompany his treatise, that he has arrived at the same result with our colleague M. *Amussat*, that is to say, he has ascertained that we can render the canal of the urethra straight, or nearly so, that we can and should perform lithotomy with a straight staff, which offers the great advantage of permitting the groove of the staff to be turned in whatsoever direction we judge most proper. We will here remark, that Mr. *Key* has not spoken of M. *Amussat*, notwithstanding it is very difficult to believe that the researches in which our fellow-citizen has long been engaged have not come to his knowledge. His silence upon this subject gives some foundation to the charges which have already been frequently brought against some English surgeons, who very often repeat in London discoveries long since made in Paris, without intimating the source whence they derive them.

We do not mean to infer, from what has been said above, that the prostatic portion of the urethra has no curvature, but

merely that it is easy to efface the curvatures, and to employ straight instruments when they appear most suitable for fulfilling certain indications. Every person agrees, says Mr. *Amussat*, that the urethra of the female is straight, or nearly so; therefore, why not admit the same thing with respect to the prostatic portion of that of man, since it is not more raised by the prostate gland in the one than by the vagina in the other? The comparison is not correct, and doubtless Mr. *Amussat* did not consider that in consequence of the pelvis in man being narrower, his bladder is more raised behind the pubes; that as the symphysis of these bones descends a little further, the urethra must necessarily be more curved, and also, that in those cases where the symphysis extends to twenty-five and a half or twenty-six and a half lines, as has been observed by M. *Leroy**, instead of twenty-one lines, which is the average extent, this curvature will be so great as to render the introduction of a straight staff at least very difficult, if not impossible.

(*b.*) The *Membranous Portion.* This is about an inch in length superiorly, and is situated under the arch of the pubes, from which it is separated by a space of about six lines, a space which is filled by cellular tissue, and by the small muscular fasciculus, known by the name of *Wilson's* muscle, which descends from the posterior part of the symphysis upon the urethra, anterior to the prostate. Through this space the dorsal veins of the penis enter the pelvis in their course to the hypogastric vein, and through it the corresponding arteries also pass, after leaving the ischio-pubic ramus, in order to reach the dorsum penis. Sometimes these two arterial vessels unite, forming only a single dorsal branch; occasionally this anormal re-union is not attended with any alteration in the disposition of the pudic arteries themselves; but at other times it is owing to the dorsal arteries of the penis deriving their

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* Leroy (d'Etiolle) Exposé des divers procédés pour guérir la pierre sans avoir recours a l'operation de la taille. Paris, 1825.

origin from one of the branches of the internal iliac, as we have observed in two subjects, and, in this case, if we examine the vessel from before backwards, we will find that, from being single without, it bifurcates at its entrance into the pelvis upon the fore-part of the neck of the bladder, and that the two branches of this bifurcation may be traced to the vesical or ischiatic arteries. Such a distribution would necessarily lead to hæmorrhage, if the operation of lithotomy was performed according to the method of *Foubert*, and it would still more certainly follow that of *Thompson* and *Dupuytren*, that is to say, if the urethra and neck of the bladder are divided in their superior paries; the same accident might also happen in operating for the stone with the gorget, as modified by *Scarpa*.

Inferiorly, the membranous portion of the urethra appears shorter, because the apex of the prostate and the bulb converge towards each other, in consequence of which a species of hollow is formed, at which we must always penetrate when we perform the sub-pubic lithotomy upon the median line. This hollow, bounded posteriorly by the fore-part of the rectum; anteriorly, by the bulb; laterally, by the recto-vesical aponeurosis and the anterior portion of the rectal lamina of the ischio-rectal fascia; inferiorly, by the most remote part of the perineal ligament, or deep-seated lamina of the perineal aponeurosis, properly so called; this hollow, we say, is filled by a dense fibro-cellular tissue, by some arterial and veinous twigs, and, between the aponeurosis and skin, by the intersection of the transversi perinæi muscles, the arteries of the bulb, and the sub-cutaneous layer. The membranous portion of the urethra is more immediately enveloped by a prolongation of the fibrous sheath of the prostate, which gives to it additional strength. In still more intimate connection with it we find a complete muscular tunic, which is sometimes very distinct and strong, at others, on the contrary, resembling the yellowish tissue. The arrangement of this muscular membrane is so remakable that it is worthy of a moment's consideration. Thus, the most external fibres are vertical, and are evidently derived from the expansion of the muscle of *Wilson*, and as

the fixed point of this muscle is behind the pubes, its contractions may draw the urethra more or less upwards, but without compressing it in a very evident manner. The deeper seated are parallel to the direction of the canal, and appear to be a continuation of those which surround the prostate; that is to say, they seem to originate from the neck of the bladder, and in such a manner that, being crossed by other annular fibres, when their contraction takes place, the urethra may be firmly constricted, so as to repel the bougie or catheter which we are attempting to introduce into the bladder: in this way we may account for that spasmodic stricture, which is observed by all surgeons, rendering the introduction of the catheter impossible for a few minutes, but afterwards admitting of its ready passage.

Internally, this part of the urethra is narrower than that included by the prostate, so that it expands as it becomes confounded with the latter, and also again grows wider as it enters the bulbous portion: whence it follows, that foreign bodies in their course along this canal frequently stop at this place, and that it is generally between the spongy and membranous portions that we most frequently meet with false passages after forcible catheterism. As the membranous portion of the urethra grows wider before and behind, it seems to become so much the weaker, because its more external laminæ separate for the purpose of enveloping the prostate or the bulb; it is in its middle portion, therefore, that its strength is greatest: so that the catheter does not deviate in the excretory canal of the urethra until it has entered the membranous portion, or rather, until after it has passed beyond it, because the species of anterior neck is also strengthened by the perineal ligament, through which it passes as it comes from the pelvis, and farther, because at this point the penis raises up the urethra considerably. But it is necessary to observe that if the instrument makes a false route at this part, it may continue to glide under the aponeurosis as far as the anal region, and in this direction the accidental passage will be less dangerous than in those cases in which the catheter passes to the circumference of the prostate and of the neck of the

bladder. However, the inferior paries alone presents these peculiarities, and the extremity of the catheter runs no risk of deviating if we follow exactly the superior portion. Finally, we may say that the membranous portion of the urethra possesses the most part of the characters of structure which appertain to the bladder, that is to say, the fleshy tunic still exists in it, and that the ancients, guided by their philosophical ideas of anatomy, had very correctly observed that the urinary reservoir and its canal were only a continuation of each other in organization as well as in continuity, and that the name "*fleshy*," or "*muscular*," which they gave to this portion of the urethra, and which Mr. *Amussat* has again proposed, was perhaps more appropriate than that of membranous, which we employ at present.

(*c*) The *bulbous portion* is merely the origin of the spongy portion, and is particularly remarkable for the pyriform expansion of its proper tissue as it is prolonged backwards below the canal, and which is called the *bulb* of the urethra. This bulb is separated from the skin by the superficial cellular layer and the accelerator urinæ muscle, so that in thin persons it may be easily distinguished externally. It is only about one inch distant from the anus, and sometimes this distance is much less; therefore, in order to reach the membranous portion of the urethra in the operation of lithotomy, we have two dangers to avoid,—wounding the rectum, if we cut too far back,—and the division of the spongy tissue, if we remove more than one inch from this intestine. There is doubtless less danger in the latter case than in the former; notwithstanding hemorrhage may follow from dividing the transverse perineal artery, as also that of the bulb; but it is easy to avoid wounding the bulb, even when the incision is begun further forwards, and it is sufficient for this purpose, after the division of the integuments, to cut upon the nail of the left index finger, at the same time that we depress towards the right the internal lip of the wound. By proceeding in this manner there is no danger of perforating the rectum, and the artery of the bulb is the only one which may be divided: now, as it is seldom avoided, even when the anterior angle of the wound

is made much nearer the anus, it appears to us to be advantageous to commence the incision, in the lateralized lithotomy, sixteen and even nineteen lines before this aperture. By the apparatus major, the incision being made upon the median line, the bulb was necessarily divided; by following that of Celsus, it is always avoided, since by the method of *Beclard*, as well as that of *Dupuytren*, the concavity of the semilunar wound should be upon the perinæum only six, eight, or ten and a half lines before the anus; finally, by the process of MM. *Sanson* and *Vacca*, in the recto-vesical lithotomy, the bulbous portion and the greater part of the membranous portion are avoided.

In examining the urethra and its bulb from before backwards, we see that they follow a different direction; and this circumstance, upon which Mr. *Amussat* lays great stress in attempting to prove that the urethra is straight, or nearly so, seems to us to prove directly the reverse. For if the penis is erect, or is placed in the direction which it then assumes, the bulb is prolonged backwards in the same line directly towards the anus; that is to say, if the urethra followed this direction, it would be exactly straight, and would present no curvature; but on the contrary, it deviates to such a degree from this line, that in penetrating by the perinæum, it is necessary to cut through parts an inch or an inch and a half in depth, and sometimes even more before we reach the prostatic portion; therefore we must conclude that as the urethra, in its natural state, passes under the arch of the pubes, it must form a considerable curvature, but that this curvature may be greatly diminished, and even almost effaced, by drawing upon the penis, and thereby easily permit the entrance of a straight staff into the bladder, although it is better to employ curved instruments whenever particular indications do not demand the other.

When we examine the bulb in its relations with the urethra, we see that it is at first separated from this canal by a triangular space, which makes a part of the bulbo-rectal hollow, it soon approximates its inferior paries, and a few lines further forwards it terminates by forming a layer which envelopes it

almost completely; or rather, it seems as if the erectile tissue primitively included between the coverings of the urethra, becomes gradually rarefied, dilated downwards and backwards in order to produce this bulb, so that, in consequence of the laminæ of this canal being much more separated at this point, it is rendered weak and lacerable previous to its entrance into the membranous portion; and its anterior contraction, which may be easily felt by sliding the finger over its inferior parietes, appears to be owing merely to the approximation or more intimate union of these same laminæ, which are then of a nature completely fibrous.

This portion of the canal terminates at its entrance into the inferior groove of the penis, where it assumes the name of the spongy portion.

(*d*) The *spongy portion*, therefore, is not separated from the bulbous portion by any distinct line of demarcation. Considered externally, it insensibly decreases as far as the anterior extremity of the corpora cavernosa, where it swells out and expands to form the glans; the erectile spongy tissue, which is still included between the coats of the canal, is thicker as it approximates the bulbous extremity; and as the fibrous tissue which envelopes it is almost inextensible, it follows, that during erection it considerably diminishes the calibre of the urethra: therefore when priapism exists, the urine is with difficulty evacuated; but this state is, on the contrary, very favourable to the emission of the semen, because being previously poured by the ejaculator ducts into the prostatic excavation, it is forced to pass from a broader into a narrower channel, and in consequence of a law of nature, its exit is thereby rendered much more rapid, so that it is ejected to a greater or less distance into the sexual organs of the female: we moreover conceive that, having passed into the membranous portion, the fleshy tunic of this part assisted by the ejaculator muscles must tend to throw it out by jets. Finally, this portion of the urethra is covered by the skin of the penis and the subcutaneous layer only; superiorly, it is so firmly united to the groove of the penis, that some persons have supposed that the canal of the urethra was developed between the layers of the fibrous

sheath of the corpora cavernosa; but these two parts are in fact only united by albugineous filaments and some very small vessels, which permit fine injections to penetrate into the corpora cavernosa, though thrown in at the bulb, and *vice versa*.

Internally, the spongy portion of the urethra contracts but very slightly from the posterior to the anterior part; behind the meatus urinarius it is considerably dilated, and forms the fossa navicularis. The existence of this dilatation appears to us to be real, and we think that the anatomical reasons assigned by Mr. *Amussat* in order to prove the contrary, are very far from satisfactory; indeed it is sufficient to fill the urethra with a fluid capable of coagulating upon cooling, to be convinced that this canal is dilated at this point. In the living subject the same result may be obtained by allowing a soft bougie to remain in it for a few minutes; and if it is true that after death, the texture of the glans being more dense, keeps the mucous membrane more dilated and tense at this point, whereas the spongy tissue behind shrivels and returns upon itself, the same thing equally exists during life, so that the whole is reduced to a mere dispute of words. Finally, the fossa navicularis, as well as the other dilated portions of the urethra, exist upon the inferior paries of the canal particularly; it is here that the inflammation generally commences in gonorrhœa; and some persons have even supposed that the disease became dangerous when the inflammation extended beyond this point. The mucous membrane of the urethra is white, having a reddish tinge throughout its whole extent; upon each paries there is a whitish line more or less distinct, extending as far as the bladder, and which is supposed by several modern anatomists, to be a species of suture resulting from the union of the two halves of which this canal is composed in the early days of intra-uterine existence.

This membrane is plicated longitudinally, and as these plicæ are produced by the canal, from its simple elasticity, returning upon itself when empty, after the distending cause has been removed, it follows that the fossa navicularis, which does not undergo these changes, is destitute of them: between these folds we find others less distinct, transverse or semi-

lunar, having their concavities directed forwards, which, if they were more developed, would form so many valves, and which limit small spaces known by the name of *Lacunæ Morgagni.* It is rare that these lacunæ are so deep as to check the passage of the catheter; but the following are the obstacles which this instrument may meet with previous to reaching the bladder:

First, we find the meatus urinarius considerably contracted in comparison with the fossette behind it. Having passed the posterior limit of this fossette, the instrument readily penetrates as far as the suspensory ligament of the penis, provided its beak is directed along the superior portion of the canal, for if we carry it along the inferior paries, we run the risk of folding the membrane, and thereby creating obstacles. At this place the urethra appears to be weakened by a sort of crease (*brisure*), which results from the position of the part during relaxation, so that at this point some precautions are necessary; afterwards the instrument passes freely to the termination of the bulbous portion, where it is liable to deviate and tear the cul-de-sac which is there met with, unless the beak of the catheter is kept exactly applied upon the superior paries. Having entered into the membranous portion, it proceeds without danger into the prostatic portion; but then it may wound the verumontanum, or be stopped in its central depression, when it is very deep, and especially, lacerate the bottom of the sinuses on each side of this crest, and pass through the prostate gland: lastly, when the fold which Mr. *Amussat* calls the "*pyloric valve,*" exists and presents a certain developement, it forms a final barrier, beyond which we cannot pass but by elevating very considerably the beak of the catheter. During this operation it must not be forgotten, that the urethra is an extensible canal, capable of being gradually dilated to such a degree, as to admit of the introduction of a cylinder of four or five lines in diameter, and so elastic that it readily resumes its primitive calibre after a similar dilatation: in consequence of this fact, it is that, on the one hand, when pathological contractions exist, the benefits obtained by the use of dilating bougies, soon disappear after

they have been laid aside; and on the other, that we are enabled to introduce into the bladder without inconvenience, large straight sounds, which afterwards serve to conduct other instruments for the purpose of seizing, breaking, or extracting calculi, contained in this organ. In consequence of this extensibility, also, stones of considerable volume sometimes insinuate themselves into the urethra. Finally, we may readily infer, that when foreign bodies have once entered it, they will be most likely to stop at the prostatic excavation, or at the origin of the bulb.

We possess a certain number of examples, in which the canal of the urethra is not prolonged to the extremity of the penis, and in such cases, the meatus urinarius is found on the inferior surface of this organ more or less approximated to the pubis. This disposition appears to originate from a simple defect of evolution, that is to say, that the cavernous bodies are developed in the ordinary manner, but the urethra remains in its rudimental state, and consequently is removed to a distance from the extremity of the organ. *Epispadias*, or cases wherein the meatus urinarius is situated upon the dorsum of the penis, are also spoken of; but this is so rare an anomaly, that the small number of examples cited of it, do not even bear the impress of authenticity: they are, moreover, much greater deviations from the natural order than all the others.

10*th*. *The Neck of the Bladder.*

By the neck of the bladder, we mean that portion of this reservoir which extends from the point where the peritoneum abandons it, to its entrance into the prostate, and we think, with *Scarpa*, that the part included in this gland, should appertain entirely to the description of the urethra.

The anterior and lateral parts of this portion of the bladder are enveloped by a species of veinous plexus, which is much enlarged in those who have long suffered under disease of the bladder, and is included in a lamellated, supple, extensible, and sometimes very abundant cellular tissue, which extends

between the pubes and bladder above the symphysis; it is the same cellular layer which we observed around the prostatic portion of the urethra; it separates the neck of the bladder from the levator ani muscle and the recto-vesical aponeurosis, and in such a manner, that by cutting the prostate from below upwards, the superior paries of the urethra and the termination of the bladder, according to the process of *Thompson*, inflammation from urinary infiltration, or phlegmonous inflammation simply, will most frequently be developed in it: so with respect to the lateral operation, especially that of *Foubert* and of *Thomas*, the urine will almost inevitably extravasate into this layer, unless an urinary fistula should form. For, the fleshy fibres of the bladder being divided transversely, the two lips of the wound will separate whenever this organ contracts, and thereby impede the formation of the cicatrix; and if the parallelism of the divided edges of the different layers of the wound be deranged ever so little, we conceive that the urine will readily become effused into the lax cellular tissue under consideration. We may also conceive the dangers of this operation when we think of the facility with which the trocar or bistoury may deviate around this organ, when we attempt to perforate it, how they may wound the rectum, if they pass too far back, or the peritoneum, if too far out; or finally, plough between these different parts, if the bladder is not properly distended.

The posterior and inferior part of the neck is the most interesting part of it; we generally call it the "*bas-fond*"*; it

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* The *bas-fond* of the bladder, extending from behind forwards from the recto-vesical layer of the peritoneum to the origin of the urethra, continuous at the sides with the lateral regions of this organ, without any very distinct line of demarcation serving to separate them, and measured by almost equal dimensions in all directions, is united by solid adhesions to the ureters, vasa deferentia, and vesiculæ seminales, which, traversing it obliquely from behind forwards and from without inwards, thereby divide it into three surfaces, two of which are lateral, convex, broader before than behind, situated external to the vesiculæ seminales, and correspond to an abundant and fatty cellular tissue, which separates them from the levatores ani, whilst the third, central, placed between the two spermatic reservoirs,

is in relation with the rectum, from which it is separated by a simple cellular layer, usually of considerable density upon the median line, and much looser upon the sides. In the first direction it very seldom contains fat, so that the intestinal and vesical parietes seem at first sight to be confounded, and thus form the recto-vesical septum, a septum so thin that we may frequently distinguish by means of the finger introduced into the intestine, the figure of solid bodies contained in the urinary reservoir; and as it does not include large vessels, or other important organs, it has been advised to penetrate, by this point, through the rectum into the bladder. It is thus, for example, that *Flurant*, of Lyons, perforated the bladder in cases of retention of urine, and that Mr. *Sanson* first proposed operating for lithotomy.

In either case it would be dangerous to carry the instrument higher than an inch and a half, or two inches above the prostate, because the peritoneum generally descends thus far upon the rectum before it is folded behind the bladder: there this membrane is so intimately united to the two viscera that its position is fixed and seldom varies: so that by keeping within the space just indicated, we are almost certain of avoiding the serous abdominal tunic. In the second, that is to say, upon the sides, the cellular tissue fills the two lateral grooves which result from the contact of the rectum with the bladder, which tissue generally contains adipose cells between its lamellæ, and we always find in it the vesiculæ seminales, vasa deferentia and terminations of the ureters. As the latter penetrate the vesical parietes in the outer and most superior part of the *bas fond*, they are not exposed to the action of the

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triangular, having a base turned backwards, which corresponds to the peritoneum, and an apex directed forwards, corresponding to the prostate, rests immediately upon the rectum, the curvature of which it exactly follows as far as the gland. There it separates from it, and takes a direction obliquely from behind forwards, and from below slightly upwards, as far as the neck of the bladder, where it is confounded with the origin of the urethra, etc.—Sanson des moyens de parvénir a la vessie par le rectum. Paris, 1817. (Tr.)

instruments in the operations cited above. The vesiculæ, together with the vasa deferentia, which run along their internal margin, circumscribe a triangle, the apex of which penetrates the posterior border of the prostate, and which is the only part at which we may operate with safety; but as in the recto-vesical lithotomy we are seldom sure of cutting directly upon the median line, if the incision approximates the gland ever so slightly, we will almost inevitably divide the termination of one of the vasa deferentia, or the commencement of the right or left ejaculator ducts. Further, we may also foresee that, if after this operation the parallelism of the wound is not exactly maintained, whether from the incision being too much on one side, or from any other cause, the urine will readily become extravasated into the cellular layer, and thereby give rise to consequences almost always mortal. On the other hand, it is well ascertained that wounds of the neck of the bladder generally remain fistulous, which might perhaps be explained by reflecting upon the arrangement of the muscular fibres and of the surrounding parts. In fact, some of these fibres are longitudinal, others transverse: the former are more numerous upon the sides and fore part of the neck; the latter, on the contrary, predominate below and behind, where they form the trigone*. Therefore, whether the incision is perpendicular to the axis of the parietes of the bladder, as in the lateral lithotomy, or parallel to it, as in the recto-vesical operation, the bladder will never contract without one set or the other of these fibres tending to produce a separation of the edges of the division, and as, moreover, they are not supported by any solid laminæ, we conceive that cicatrization will occur with difficulty, and we can scarcely believe that lithotomy, performed in such a manner

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* The posterior surface of the neck of the bladder presents an eminence which commences from the orifice of each ureter, is directed downwards and inwards and is united below, and upon the median line at an obtuse angle with that of the opposite side, producing thereby a prominent angle inferiorly, which is called the vesical trigone, (Trigonus Lieutaudi). Meckel, p. 565, tome iii. TRANS.

as to incise the recto-vesical paries between the prostate and the reflection of the peritoneum which separates the perinæum from the pelvis, properly so called, is not a dangerous operation. Sometimes the *bas-fond* of the bladder, instead of being convex ,is concave, and represents a species of groove applied upon the fore-part of the rectum: in such a case the operation of lithotomy by this intestine would be more easy, and by the lateralized method it would be less formidable than where a contrary disposition exists.

The neck of the bladder internally represents a species of triangular funnel, the pipe of which is at the urethra, and which is formed below by the vesical trigone. This trigone, which rests principally upon the rectum in the middle, and laterally upon the vesiculæ seminales, receives at its posterior angles the openings of the ureters; but as these canals have run between the tunics of the urinary cyst for the distance of five or six lines, such a disposition results from it that the urine readily trickles into the bladder, but when it has once entered this reservoir, far from being able to regurgitate into the ureters, it, on the contrary, shuts their orifices by the eccentric pressure which it produces; so that the urine acts, in this case, in the same manner as liquids enclosed in vessels possessing a valve. This trigone, and the whole of the *bas-fond*, are generally on a more inferior plane than that which the commencement of the urethra occupies, which is raised at this point by the prostate. In children this excavation is scarcely evident, or does not exist; the accumulation of excrement in the rectum causes it to disappear; and in very fat sebjects it is also pushed much higher, so that it sometimes becomes almost impossible, or at least very dangerous to puncture the bladder from the rectum, in persons in whom the former organ is raised, if I may so say, above the pubes by the adipose layers which surround it. It is at the junction of the neck of the bladder with the urethra that we observe the commencement of the verumontanum, or vesical uvula, as well as the prominence, or sphincter vesicæ, when it exists.

11*th*. *The Rectum.*

We may say that so much of this organ as is situated below the place where it is enveloped by the peritoneum in the pelvis, appertains to the perineal region. It descends obliquely forwards between the sacrum and bladder, until it reaches the level of the prostate, when it turns slightly backwards to terminate in the anus. This portion of the rectum therefore, taken as a whole, presents a distinct curvature, the convexity of which corresponds to the posterior surface of the prostate, and its concavity embraces the extremity of the coccyx; whence it follows that, in order to administer an enema, introduce a suppository, or any other foreign body into this intestine, it is necessary to pass it first obliquely from below upwards and from behind forwards, to the distance of about two inches, and afterwards to direct it upwards and backwards. As the anal extremity of the rectum inclines backwards, it leaves between its anterior surface and the bulbous portion of the urethra a triangular space, through which the instrument must always penetrate in the operation of lithotomy. This triangle is formed superiorly and anteriorly by the membranous portion of the urethra and bulb inclusively; posteriorly by the fore part of the rectum from the apex of the prostate to the anus, and inferiorly by the skin, which forms the base of it. Laterally, this space is limited by the rectal lamina of the perineal aponeurosis. Inferiorly and anteriorly it includes the bulb of the urethra, and the apex of the prostate is met with in its posterior and superior part. In it we find, from the skin towards the urethra, the cellular layer; the origin of the accelerator urinæ, intersected by the extremity of the external sphincter and transversalis perinæi muscles; the termination of the artery of the bulb; some fibres of the levator ani; dense and compact cellular tissue; the basis of the perineal aponeurosis properly so called, and the membranous portion of the urethra. The posterior border of this triangle, i. e. the rectum, may be inclined more or less towards the coccyx; if this inclination is carried very far, we conceive that it

might be very dangerous to make the incision in lithotomy at less than an inch before the anus. In such a case we would seldom fail, especially by the operation of *Celsus*, opening the rectum before we reach the prostate. This accident would be still more liable to happen in those subjects in whom the intestine is very much dilated immediately above the sphincter, and we have been informed that lithotomy according to the process of Mr. *Dupuytren*, has once been attended with this inconvenience. When, on the contrary, the anus is not so far back, the rectum is almost always regularly concave anteriorly, as is observed in children, for example. We then penetrate without danger into the bladder; but in making use of the *lithotome cachè*, it is very easy to divide the rectum at the same time with the prostate, because we are obliged to elevate the handle of the instrument considerably forwards when we are cutting the neck of the bladder. It is under such circumstances that the knife of *Cheselden*, that of *Dubois*, or the gorget of *Hawkins*, not as improved by *B. Bell*, or *Desault*, but such as the inventor made use of, or still better, as modified by *Roux* and *Scarpa*, that is to say, pretty broad towards its cutting extremity and retaining its groove; it is then, we say, that these instruments might have some advantages over others.

From the apex of the prostate as far as two or three inches above this gland, the rectum being separated from the bladder, the vesiculæ seminales, the vasa deferentia, and the prostate itself, only by a cellular layer of but slight thickness, it follows, that the distended urinary reservoir and the gland which surrounds the extremity of its neck, whether tumid or not, depress the fore-part of the intestine in such a manner, that we may readily ascertain their state from the cavity of the latter organ; but, we repeat it, in choosing this route for the extraction of vesical calculi, numerous dangers are to be apprehended, especially if we cut open the *bas-fond* of the bladder, without dividing the neck of the urethra, bladder and prostate: then we almost always have as a consequence a recto-vesical fistula. Besides, it will frequently happen, that the vasa deferentia or vesiculæ seminales will be divided. In the third place,

if the peritoneum descended very low behind the bladder, as *Camper* once observed,* this membrane would be comprised in this division. If, on the contrary, we follow the process of *Vacca*, the latter accident will be avoided, and stercoraceous fistulæ will be less liable to happen; but one of the ejaculator canals will uniformly be included, and although the section of one of these ducts may not, perhaps, be always so dangerous as *Bell*† and *Scarpa*‡ pretend, yet we know that it may occasion the loss of the testicle.

In subjects habitually constipated, affected with chronic diseases of the bladder, those who have for a long time carried a calculus in this viscus, or who are advanced in age, the veins interposed in the cellular layer which unites the *bas-fond* of the bladder and prostate to the rectum, sometimes become so much enlarged that their inevitable division in the recto-vesical lithotomy, and occasional section in the lateralized method, may be followed by profuse hæmorrhage. In consequence of the same circumstances, the rectum, especially in old people, becomes greatly dilated above the anus, then instead of being cylindrical upon its anterior surface, it represents a kind of groove, in which the prostate and *bas-fond* of the bladder are lodged; so that the rectum rises up more or less over these parts, whereby in the lateralized and even transverse lithotomy, it is difficult to avoid wounding the organ of defecation, and the more so because the rectum generally bulges out more on the left side than on the right. This portion of the alimentary tube is likewise sometimes thrown entirely to this side of the pelvis§, in the same manner as in other cases, it is very much inclined to the right. From these relations we perceive, that it is a very fortunate circumstance that stercoraceous fistulæ seldom manifest themselves anterior to the anus, for if it should become necessary to operate upon fistulæ in this direction, the urethra, neck of the

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* Demonstrationum pathol. lib. 2, p. 10. † System of Surgery.

‡ Osservazzioni sullo tagl. retto-visicale, etc.

§ Deschamps, tome 3.

bladder, vesiculæ seminales, vasa deferentia, and arteries of considerable magnitude, would be easily wounded.

Posteriorly and laterally, the rectum is only separated from the anterior surface of the coccyx, the coccygæus and levator ani muscles, by the cellular tissue above the pelvic aponeurosis, which tissue, however, is very abundant, supple, and sometimes contains a great quantity of adipose cells: it is traversed by twigs of the sacra media artery, nervous filaments from the sacral plexus, etc. whence it follows that phlegmonous inflammation may be developed in it, rapidly followed by a copious purulent secretion, which will more readily extend towards the abdomen, than penetrate to the surface of the perinæum. Still lower down, that is to say, below the recto-vesical aponeurosis, the rectum is enveloped by the muscles which have just been enumerated, and by the external sphincter; consequently, is it found immediately surrounded by the adipo-cellular tissue which fills the ischio-rectal excavations; so that, in extensive stercoraceous abcesses, it can only be denuded in this latter portion, unless the muscular floor of the perinæum, and the two fibrous laminæ which covers it, are disorganized or perforated in some points, in which cases the disease is very dangerous and most frequently without resource.

Internally, this organ sometimes swells out in the form of a bag or cul-de-sac, which permits the fæces to accumulate above the levator ani, and this dilatation corresponds to the *bas-fond* of the bladder, as well as to the prostate. It becomes contracted as it passes through the perineal aponeurosis and sphincter ani, so that it is necessary in most subjects to use a certain degree of force in order to penetrate it: it is generally wrinkled parallel to its length, and these plicæ, or perpendicular columns, are intersected or rather united by transverse rugæ in the form of small valves, the concavity of which is directed upwards. There are a certain number of anatomists and surgeons, who actually admit that these lacunæ of the rectum, possess a peculiar organic structure, which favours the formation of fistulæ in ano; they think, that irritating secretions and foreign substances, lodge more particularly in

these small excavations, and there excite ulceration, which is soon followed by phlegmonous abcesses and fistulæ. It could not be denied, that this explanation would appear natural, plausible, and very simple, if, on the other hand, it was proved, as *Sabatier*, MM. *Ribes*, *Larrey*, *Richerand*, *&c.* pretend, that the intestinal orifice of the fistula is never situated more than two or three inches above the anus. In fact, this mode of accounting for these affections, would be strongly supported by the anatomical arrangement of these lacunæ of the rectum, which are so disposed, that the mouths of the inferior are directed upwards, whereby they may retain substances capable of irritating and perforating them; whereas the superior being turned downwards, are not subject to the same inconveniences. But, on the one part, MM. *Boyer* and *Roux* continue to believe with *Desault*, and the ancient surgeons, that stercoraceous fistulæ sometimes have their internal orifice very high up; on the other, Mr. *Ribes* has observed, among the numerous cases detailed in favour of the new opinions, that this opening not only does not extend very high up, but that almost always it is situated a few lines only above the sphincter. Therefore the explanation which is derived from these lacunæ, in these two cases, is no longer admissible, and hence, we cannot regard it as general. Some modern surgeons have stated that in operating according to the opinion of *Desault*, in these diseases, serious danger may result from it, because in penetrating the rectum four or five inches above the anus, for the purpose of dividing the fistulous passage between its two orifices, we incur the risk of opening the peritoneum in those cases where it descends lower than usual between the bladder and rectum. If we examine attentively the arrangement of these parts, we will readily convince ourselves that there is but little foundation for such apprehensions; for from the anal aperture to the most elevated part of the *bas-fond* of the bladder, from which the serous membrane of the abdomen is reflected, the distance is from four to five inches, and this tunic always descends a little less behind and upon the sides, the directions in which fistulæ are most uniformly met with; besides the cutaneous orifice of these sinuses

is generally upon a plane much below that of the anus itself, whence it follows, that we may incise to the extent of six inches without danger of wounding the peritonæum. It must also be noted, that if the rectum was perforated above the pelvic aponeurosis an abscess would form in the pelvis, and for this reason we may conclude, that when the inflammation extends towards the surface, the superior orifice of the fistula is much less elevated than the peritoneum.

The mucous membrane which lines the rectum is supple, thick, and united to the muscular tunic, merely by a very lax and very extensible cellular layer; so that what we frequently call prolapsus of the rectum, is only a fold or protrusion of the villous tunic of this organ. Mr. *Dupuytren* removes and radically cures this protrusion in adults, by excising a more or less considerable portion of the soft skin which surrounds the anus. In 1820, we saw a woman treated in this manner at the *Hotel Dieu*, and she was completely cured of this inconvenience four days after, notwithstanding she had been afflicted with it for many years. It appears to us that the efficacy of this operation is to be attributed to the inferior portion of the rectum being rendered more tense, the skin firmer, and the sphincters more solidly supported by all these parts, after the integuments have become cicatrized.

The fleshy tunic consists of longitudinal fibres, which exist almost separately, or at least predominate, as far as on a level with the prostate, and of annular fibres, which gradually increase in number from this point to the skin, where they form that small sphincter previously spoken of when on the muscles of the perinæum. The hæmorrhoidal arteries and the terminations of the inferior mesenteric creep between these fleshy fibres, where they form a very complicated net-work, the branches of which are lost in the internal tunic: these branches are frequently of considerable volume even at the inferior part, and as they ramify principally in the posterior half of the rectum, they may be divided in the operation for fistula, and give rise to a troublesome hæmorrhage.

The venæ comites of the superior hæmorrhoidal arteries are of still larger size; and as they form a part of the origin

of the great mesenteric vein which receives almost all the branches of the digestive canal, we may admit with *Broussais*, that, in diarrhœa caused by an inflammation of the large intestine, leeches are of more service when applied around the circumference of the anus, than upon any other point of the abdomen, because, these veins being destitute of valves, we thereby directly relieve their congestion. It is also from the relations of these veins with the system of the vena porta that the ancients founded a similar opinion with regard to diseases of the liver. These vessels, by their frequent intersections between the integuments and the sphincter, the mucous membrane and the fleshy fibres, form a plexus around the anal aperture, and are sometimes transformed into a species of erectile tissue, which, according to Mr. *Recamier*, is the organic cause of hæmorrhoids, whereas other authors continue to regard these tumours merely as varicose and dilated veins. It is evident that there is but very little difference between these two opinions, and that it would be easy to reconcile them; but this appertains to pathological anatomy. We may also note that Mr. *Ribes* considers these veins as the primitive cause of a certain number of fistulæ in ano, because they may become excoriated, and open into the cavity of the rectum.

Children are occasionally born with a mal-conformation of the rectum, and sometimes this organ is simply contracted in its natural opening, as in the cases related by *Roonhuysen* and *Boyer;* at other times it is obliterated in its middle, although the anus exists*; or this aperture is closed by a membrane different from the skin, which may be situated at a greater or less distance up the intestine†. In certain cases there is no vestige of an anus, and the skin is as firm and as thick at the point which this opening usually occupies as elsewhere‡. Finally, we find it obliterated throughout its whole

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* Petit, *Mém. de l'acad. roy. de ch.*

† Engerran. *Mem. de l'acad. roy. de ch.*

‡ J. L. Petit, *Mem. de l'acad.*

extent* ; or entirely wanting† ; it is not less uncommon to see it opening into the urethra‡, into the bladder§, vagina‖, or externally, forming an unnatural anus. It is from the latter circumstance that *Litre*¶, *Callisen*, *&c.* have proposed to establish an artificial anus, in the iliac or lumbar region, in children born with an imperforate rectum ; a practice which has been successfully employed by Professor *Dubois* and M. *Duret* of Brest.

Such are the numerous parts which enter into the composition of the perinæum in man, and which we are now to examine in their order of superposition, laying aside those varieties in thickness and transverse dimensions which they too frequently present, and which are such, that M. *Dupuytren*** has found, in twenty three subjects, for extremes, between the two tubera ischii, two inches and three inches and a half; between the neck of the bladder and the skin of the perinæum, from one inch some lines to four inches. We ourselves have taken these measurements upon forty dead bodies, and the results have been the same with respect to thickness; only, in relation to the separation of the ischia, we have found from one inch and three quarters to four inches.

Upon the median line and before the anus we find; 1st. the skin, with its raphé, of pretty great thickness; 2nd. the subcataneous layer of a reddish white, sometimes putting on the appearance of a muscular membrane, of considerable thickness, and including veinous and arterial twigs; 3rd. the superficial lamina of the perineal aponeurosis, and the anterior extremity of the sphincter ani muscle; 4th. the accelerator urinæ and transversi perinæi muscles, and branches of the artery of the bulb; 5th. the bulb of the urethra enveloped in

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* Flajani, *osservazzioni di cirurgia, etc.*

† Morgagni, *de sedibus, &c.* Epist. 32, Ch. Triæn. *Obs. Med. Ch. p.* 60. F. de Hilden, *Obs. Ch.* cent 1. obs. 75. Durr *Ephem. des Cur. de la Natur.* Déc. 2. an. 7. obs. 72.

‡ Van Swieten, Morgagni, Haesbert, de Jussieu.

§ Schultz, Schenkius. ‖ Ruysch, Binninger, Wagner.

¶ Litre, Petit, Méry, *Mem. de l'acad. des Scien.* 1709-10.

** Thèse de Concours, 1812.

its fibrous tunic, then the recto-bulbar hollow; 6th. the bulbous and membranous portions of the urethra; the former below the deep-seated lamina of the perineal aponeurosis, the second principally above it; 7th. the aponeurosis itself perforated by the excretory canal for the urine, and continuous with the sub-pubic ligament; 8th. the prostate and prostatic portion of the urethra, in which we find the ejaculator canals, the excretory ducts of the prostate and the verumontanum.

In proceeding from the coccyx in order to arrive at the bladder, we meet with, 1st. the skin, of considerable thickness behind the anus, very thin and wrinkled around this aperture; 2nd. the superficial cellular layer, thicker near the coccyx, very thin upon the sphincter; 3rd. the coccygeal prolongation of the external sphincter muscle; this muscle itself; 4th. a pretty thick cellulo-adipose layer, in which some branches of the external hæmorrhoidal artery ramify; 5th. the coccygæus muscle; 6th. the posterior wall of the rectum; 7th. the cavity of this intestine; 8th. its anterior paries; 9th. the recto-vesical cellular layer, which encloses the veinous plexus of the prostate, the vasa deferentia, the vesiculæ seminales and the fat upon the sides; whilst, upon the median line, it is compact and almost aponeurotic; 10th. the posterior border of the prostate, and the *bas-fond* of the bladder.

Laterally and anteriorly we find; 1st. the skin, a little thinner than upon the median line and most frequently corrugated; 2nd. the sub-cutaneous layer, in which the veins, nerves, and superficial artery of the perinæum creep, and which often includes a large quantity of fat; 3rd. the superficial aponeurotic lamina of the perinæum; the ischio-bulbar triangle; the accelerator urinæ and transversalis perinæi muscles; the artery of the bulb; 4th. the corpus cavernosum, the deep-seated aponeurosis of the perinæum, including between its laminæ the deep branch of the pudic artery; 5th. the cellular tissue and vessels; 6th. the levator ani muscle; the lateral portions of the neck of the bladder; 7th. the recto-vesical aponeurosis.

In the anal portion we observe successively: 1st. the integuments, thick and dense upon the sides where they approximate the breech; 2nd. lamellated, filamentous and adispose cellular tissue in great abundance, filling the whole of the ischio-rectal excavation, and in which the external hæmorrhoidal artery and nerve ramify, as well as veins in considerable numbers; 3rd. the ischio-rectal aponeurosis; 4th. the levator ani muscle, internally; the side of the rectum and the pelvic aponeurosis; 5th. the trunk of the pudic artery, accompanied by the nerve and veins of the same name; the obturator muscle externally, and also the pelvic aponeurosis.

ART. II. *An Account of a Case in which Laudanum was extracted from the Stomach by means of* READ'S APPARATUS. *To which is added, a Description of that Instrument, with Directions for its Use.* By SAMUEL W. MOORE, M. D. one of the Physicians of the New-York Hospital.

IN the month of July 1826, I was requested to visit John Hudson, who, I was informed, had taken laudanum. His wife, it appeared, on returning home after an absence of some hours, had found him lying on the bed in a state of complete insensibility, from which she could not succeed in rousing him.

In this condition I found him. Near him was a cup, which I was satisfied, on examination, had contained laudanum. I had him removed from the bed to a chair, where he was supported by assistants, and in this situation cold affusion was liberally applied for some minutes, by which means he was so far roused as to be able to swallow a solution of about one drachm of sulphate of zinc: but this produced no effect. I then determined to lose no more time in such fruitless efforts, but to employ at once Read's Stomach Pump. The patient living near my own house, the instrument was procured in a few minutes, and I proceeded immediately to use it.

The œsophagus tube was introduced into the stomach without the least difficulty, as the state of the patient prevented him from offering any resistance to that operation, and the

loss of two upper front teeth obviated the necessity of employing any guard in the mouth to protect the tube from injury by the teeth.

After the tube was introduced, warm water was alternately injected and pumped out again, repeating the operation several times, until more than half a gallon had been thrown in and extracted. In this way the stomach was in a very few minutes perfectly cleansed, and the poor man was thus rescued from a state which would otherwise, I am persuaded, have soon terminated in death, as there appeared to be no chance of affording him relief by any other means. The effect of the laudanum did not immediately disappear, but inclination to sleep continued for some hours afterwards. The next morning, when the man was perfectly well, he appeared to be truly grateful for the services rendered him; and he then confessed to me, that in a fit of despair, with the intention of destroying himself, he had procured an ounce of laudanum, the whole of which he had taken.

Some time since, I published the case of a woman who had taken laudanum, and for whose relief I had employed the stop-cock syringe, generally known as "Juke's Syringe." I am pleased now to give my testimony in favour of Read's instrument, which I consider not only superior to Juke's, but indeed to all others with which I am acquainted, that have been either employed or recommended for the same purpose.

As I have reason to believe that Read's apparatus is not generally known to the profession in our country, I hope I may render an acceptable service by giving a description of it, and stating some of the advantages it possesses over other may instruments which have been recommended for extracting poison from the stomach.

Read's apparatus consists, in the first place, of a small syringe, or rather forcing pump, which is made either of silver or brass, more commonly the latter. This is six inches long, exclusive of the handle of the piston rod. The cylinder is less than an inch in diameter, and will not contain more than ten or twelve drachms of fluid; but the piston, which only has a stroke of about four inches, may be worked so

quickly, and with such facility, that three pints of fluid may be easily passed through the instrument in every minute.

Below the cylinder, the pump diminishes in size to an opening at the extremity half an inch in diameter: this forms a valve chamber, furnished with a bullet valve. From the upper part of this chamber projects obliquely upwards, a lateral branch pipe, an inch and a half long, containing another valve similar to the first. When the instrument is kept in a perpendicular direction, or but little inclined, both these valves remain closed, except during the action of the piston, which, in ascending, opens the lower valve, through which the fluid is admitted, and in descending, opens the lateral valve, through which it is propelled. These valves require no care nor attention from the operator, but always act simply by the motion of the piston, which gives to this instrument a decided advantage over all other syringes which have been employed for the same purpose, as the best of them require constant attention to close one communication with the cylinder and open the other, at each stroke of the piston.

Attached to the cap, which screws on the top of the cylinder, is a small packing box, in which the piston rod works; and on the side of this cap is an aperture, which gives free ingress and egress to the atmospheric air, thus facilitating the motion of the piston. The remainder of the apparatus consists of two flexible tubes, about half an inch in diameter, the one sixteen inches, and the other two feet long. The short tube is always used, to whatever purpose the instrument may be applied. One end of this tube is mounted with a brass joint and screw, to connect it with the syringe by a screw on the short lateral pipe above-mentioned. On the other end is a brass socket, exactly of the size with the opening at the lower end of the syringe, as they are both intended to receive the same parts of the apparatus.

The other, which is called the œsophagus tube, has the end which is to be introduced into the stomach somewhat enlarged, closed, and rounded at the extremity; near which are two lateral apertures. The other end of this tube has on it a brass joint, which fits equally well both into the end of the syringe

and into the socket on the other flexible tube. In using the instrument as a stomach pump, a few simple directions only are required. The patient is to be placed in a proper position for the introduction of the œsophagus tube, by throwing the head backwards, until the mouth is nearly in a right line with the throat; then, having previously oiled the œsophagus tube, it is to be carefully introduced into the stomach, where it must remain undisturbed until the operation of injecting and extracting is completed. The tube is not to be connected with the pump until after its introduction into the stomach. In order to guard the tube from injury, the teeth are to be kept apart by a wooden guard placed between them, which is secured in its place by tapes, attached to the ends, and tied behind the head. This guard may either have a hole in the centre, through which the tube can pass, or a notch in the side, in which it may be lodged securely. As it is generally well to dilute the poison in the stomach before attempting to extract it, warm water is to be thrown into the stomach by connecting the œsophagus tube with the other tube, by means of the brass joint on one tube, which is received into the socket on the other; then plunging the lower end of the syringe into the fluid to be injected, and holding the instrument nearly perpendicular, any quantity required may be thrown into the stomach, simply by working the piston. When this is done, and it is required to reverse the action of the instrument, the end of the œsophagus tube is to be detached from the other tube, and inserted into the opening at the lower end of the pump, which can easily be done in a second, without disturbing the tube from its position in the stomach; then, on renewing the same action of the piston, the contents of the stomach are drawn up through the œsophagus tube, and be received in a basin held at the open end of the other tube.

The merit of Read's instrument, however, does not alone consist in its being the best stomach pump which has been invented, but as an enema apparatus also, it is so decidedly superior to all others in use, that if the instrument were adapted to no other purpose, I think it would be invaluable, and I

doubt whether any other would be employed where this was known, and could be procured.

This instrument, so valuable as an enema apparatus, is sometimes put up separately for that purpose. This comprises the syringe and the short flexible tube, with several ivory rectum pipes of different forms and sizes: these all fit into the socket on the flexible tube. One of these pipes is so constructed as to fit into the socket at right angles with the tube. This renders the instrument exceedingly convenient for self-injection. As there are many persons who are obliged to have frequent recourse to this mode of relieving the bowels, these, after having been accustomed to employ the clumsy and cumbersome machines which have been heretofore used for this purpose, will esteem, as no small improvement, the introduction of this neat and convenient, apparatus, which can be used without trouble at any time in a few minutes; and is so portable, that it may be carried in the pocket; and so constructed, that at a single operation, by continuing the action of the pump, any quantity of fluid which the bowels are capable of containing, may be injected without removing the instrument. In short, so well adapted is the apparatus in every respect to this purpose, that I am satisfied when it shall become generally known, few families, and no medical men, will be willingly without it.

The ingenious inventor of this pump has adapted to it several other instruments, whereby it is made applicable to a variety of purposes: cupping and breast glasses; a tobacco fumigator; and lately, an apparatus for facilitating the transfusion of blood, by means of which the danger of injecting air into the veins is said to be avoided. But of more importance than these is the catheter, by which the bladder may be injected, or its contents drawn off. For this purpose it is used in St. Thomas's Hospital, as we learn from a valuable hospital report, published in a late number of Johnson's Review; and the reporter states, that "it is admirably adapted to the purpose."

I know that Read's Syringe has received the approbation of some of the first professional men in London. I need only

mention the names of Sir Astley Cooper, Mr. Abernethy, and Dr. James Johnson. Sir Astley, in one of his lectures, as reported in the Lancet, when speaking of this instrument for evacuating the stomach, remarks, that "it affords the best means of saving persons, who would otherwise perish under the influence of opium." He mentions a case, which occurred before he was acquainted with this instrument, of a young lady who had taken opium, where he observes, "Every means which I could employ for the purpose of producing vomiting, proved completely unavailing."—"I sat hour after hour by the side of this young lady, watching her progress to dissolution, without being in the least able to prevent it. If, however, I had been acquainted with the instrument which has been since invented, I should have used it with the probability of success."

From some years' experience of the utility of this valuable instrument, I have not hesitated thus highly to recommend it; and if, by so doing, I should succeed in bringing it into more general notice in this country, I shall feel satisfied that the time I have spent in preparing this article has not been unprofitably employed.

ART. III. *Observations on the Use of the* DATURA STRAMONIUM *in Chronic Rheumatism, Neuralgia, &c. &c.; and on an Epidemic Fever which prevailed in parts of Holland, in* 1826. In a Letter to JEREMIAH VAN RENSSELAER, M. D. of New-York, by the Chevalier JOSEPH ROMAIN LOUIS DE KIRCKHOFF, M. D. late Physician to the Military Hospitals; Honorary Vice-President of the Mineralogical Society of Jena; and Associate of most of the Literary and Scientific Academies and Societies of Europe.

ANVERS, *23d April*, 1827.

I HAVE had the honour of communicating to you, in one of my preceding letters, the fact that for several years I have been employing, with the greatest success, the *datura stramonium* in the treatment of chronic rheumatism. I told you that whilst I was attached to the army, I had especially numerous opportunities of observing and treating, in the hospitals entrusted to my care, patients suffering under old rheumatismal affections;

and that of all the remedies which I had employed to combat these disorders, I had found none so efficacious as the datura stramonium, a plant very common in all Europe, and to which Storck had been, in a certain measure, the first to call the attention of practitioners. You are aware, that after this physician, this plant has been much recommended in mania, melancholy, epilepsy, and asthma; and when these affections depend essentially on an excess of nervous irritability, the administration of the datura stramonium is strongly indicated, and produces good effects. I could cite several cases which I have collected on this point, and which confirm this assertion;—but I do not know that any physician, before me, has recommended it in the treatment of chronic rheumatism.

I believe I have informed you, that I administer the datura stramonium, internally, under the form of an extract prepared from the leaves (extractum foliorum daturæ stramonii), commencing with one, or two grains, every twenty-four hours, (a dose which I augment daily and gradually, until it produces vertigo, dimness or difficulty of sight, dryness in the throat, and dilatation of the pupil); externally, in the form of a cataplasm composed of the leaves, applied to the painful parts, or I cause them to be lightly rubbed with the tincture of stramonium.

I have collected, within a couple of years, several very interesting observations on the therapeutical use of the datura stramonium in the treatment of neuralgia. I have cured, as by enchantment, several neuralgic cases, frontal and maxillary, by the application of cataplasms, or by the tincture of stramonium in frictions. I shall confine myself to relating a single case, which will suffice to induce practitioners to employ this remedy against so powerful an affection. A lady, distinguished by her birth and her fortune, suffered for eight or nine months the most acute pains, caused by a maxillary neuralgia, which seemed to proceed from the circumstance of her having had extracted two molar teeth. She was evidently in a decline, and despaired of a cure, after having been treated by a great number of physicians, and having employed a host of remedies without the least benefit. She had decided upon

having performed a section of the nerve, an operation which unfortunately does not always succeed. In this painful condition she came to consult me. I had recourse to frictions of the tincture of the datura stramonium (tinct. folior. dat. stramonii), recommending her to rub the cheek therewith ten or fifteen times a day. From the first applications she experienced relief, and the amelioration was more and more evident, so that in from five to six days this lady perfectly recovered.

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You have undoubtedly heard mention made of an epidemic which first developed itself, in the month of July last year, in the provinces of Friesland, Groningen, and North Holland, and which continued to commit its ravages until the month of February in the present year. I think it will be agreeable to you to receive some information of this disease, which has destroyed so many victims. It must be observed, that the provinces I have just named are of a marshy character, and the soil is, for the greatest part, turfy. During the autumn of each year, there occur, especially in low places, intermittent fevers, which are endemic, and very extensively prevalent where the summer has been very warm.

Much absurdity has been uttered with respect to this epidemic disease. Some have even gone so far as to entitle it *contagious*. In my opinion, it has been the product of marshy exhalations, invested with an extraordinary form by the excessive heats which we experienced the last summer. This heat, indirectly enfeebling the system, has disposed it, in a peculiar degree to receive the deleterious action of the marshy emanations; so that, according to my views, the heat has been the predisposing, and the marsh miasms the occasional causes of the disease; which, I have no doubt, has not been other than the endemic intermittent and remittent fevers of Friesland and North Holland, &c., occasioned by the marshy soil, and which, by the intensity and long duration of the morbific causes, have been the more general and severe, and very frequently fatal.

I will avail myself of this opportunity to inform you that I employ, with marked success, the *prussiate of iron* in the treat-

ment of epilepsy, when it does not result from an organic lesion. I have obtained from it, in some instances, astonishing and unexpected effects. I have effected complete cures in persons who had been attacked with epilepsy for a number of years. My method of administering the prussiate of iron (prussias ferri) is to commence with very small doses, and to augment it gradually to six or eight grains daily; and if the patient is of a sanguine habit, I precede the use of the prussiate by one or two bleedings, and by the application of leeches to the temples.

If you think the preceding observations possess any interest for the physicians of your place, I beg you to insert them in the excellent Journal of Medicine of your city.

I beg you to accept of the reiterated expressions of my high esteem, &c. &c.

ART. IV. *Notice of an Epidemic which prevailed in several districts of the Island of Java in the years* 1825 *and* 1826. In a letter addressed to Jeremiah Van Rensselaer, M. D. of New-York. By the CHEVALIER KIRCKHOFF, M. D. of Anvers.

NOTHING exposes to view so effectually the frailty of our existence as an epidemic disease of a fatal character; and frequently, notwithstanding all our investigations, we do not possess ourselves of a knowledge of the causes of the evil. To collect the materials capable of assisting in the composition of the history of an epidemic, which has devastated whole provinces, is to render essential benefit to the art of healing, and consequently to suffering humanity.

During the months of June, July, and August 1824 and 1825, a fever of a severe type prevailed under the epidemic form in several districts of the Island of Java, especially in those of Batavia, of Cheriban, of Preanger, and of Krawang. In this last province more than twenty-four thousand inhabitants were seized with it. Doctor Blume, Commissary of health for Netherlandish-India, observed this disease un-

der all its forms, and has gathered together his observations thereon, which are highly interesting, in a report which this learned physician has addressed to Governor-General Vander Capellen, and which he has had the kindness to communicate to me.

That which appears to me to merit particular attention from physicians, is the perfect resemblance between this disease and that which has recently carried desolation in its progress through some provinces of Holland, and which, I may observe by the way, was not produced except by the excessive heats of the summer of 1826, and the marshy exhalations which they developed in an extraordinary degree. I dare boldly advance it, notwithstanding the singular opinion which a distinguished Dutch physician has just published on the etiology of the epidemic disease of Holland, which he considers to be *contagious*. Several letters written to me respecting this disease, by well educated and experienced physicians, who have seen and treated it from the beginning of its appearance until the end, confirm me in the opinion that it was no other than the intermittent and remittent fevers, which, by cause of the marshy soil, are endemic in Friesland, North Holland, &c.; and which, during the last year, were more general, more severe, and very frequently fatal, on account of the intensity and long duration of the occasional causes.

The epidemic disease which forms the subject of this notice, appears to have been the product of intense heats and marshy emanations, like that which lately exercised such fatal ravages in Groningen, Sneck, Hoorn, &c. It made its appearance chiefly in low and marshy situations. M. Blume regards it as a bilious fever, and does not believe it capable of communicating itself by contagion. He thinks that the atmospheric influence has powerfully contributed to the origin and developement of the disease.

It presented almost always symptoms of gastric affection, and of congestion in the viscera. According to M. Blume, the congestions were of a passive character.

This was the progress of the disease in ordinary cases. It announced itself by a great lassitude, a general feeling of uneasiness, by vertigos, pains in the head, especially under the orbits, with a sensation of pressure, anorexia, gastric embarrassment well marked, often by yellow colour of the skin, &c. These symptoms commonly made their appearance for several days before the fever was developed. This manifested its presence by a slight chill, followed by an acrid sense of heat in the skin, an increase of the pain in the head, a desire to vomit, or rather powerful bilious discharges upwards and downwards, connected too with spasmodic affections, which were renewed during each exacerbation, &c. The remissions of the fever were very short, and, during the paroxysms, the heat, which was very great, was most evident in the epigastric region and in the forehead, and continued undiminished and without perspiration. The pulse, which at the commencement of the disease was tense and accelerated, became more and more weak and irregular. The strength of the patient sunk with so much rapidity, that frequently after the first attack of the fever he could no longer hold himself on his legs.

The symptoms were aggravated by each renewed paroxysm, if the disease was not properly combatted. To the symptoms already mentioned, must be added delirium, which usually accompanied the fever. Most frequently life was extinguished by convulsions, and death was preceded by colliquative diarrhœas and an extreme prostration of all the powers.

In general, the disease offered, according to M. Blume, a nervous-asthenic character. Although the fever, in its onset, assumed the remittent type, it was not infrequent for it to become intermittent, or rather it would be made to undergo this change by an appropriate treatment.

The treatment, followed and advised by M. Blume, was crowned with happy results. To oppose the condition of gastricity he had recourse to minoratives; that is to say, during the first period of the disease, and whilst their employment was not contra-indicated by the violent symptoms, such

as spasms, great prostration of strength, diarrhœa, &c.— Small doses of sulphate of soda, or of sulphate of magnesia, produced good effects in the commencement of the disease; but an eccoprotic medicine, which was employed with greater security, was the young leaves of the *Cassia alata* (Daun kupan kimanila) in decoction.

With respect to emetics, their administration was less proper. They frequently provoked powerful diarrhœas. Bleedings were hurtful, as also the prolonged use of mercurials, which some physicians have so blindly cried up in the treatment of the diseases that are peculiar to the burning countries of the torrid zone.

In the second period, when the disease had already reached its acme, and the vital forces were much weakened, there was no room for temporizing medicine, (*medicine expectante.*) It became necessary to strengthen. M. Blume obtained excellent effects from the bark of the *Cedrela Febrifuga*, of which the medicinal properties would seem to be absolutely the same as those of the quinquina. It was administered in decoction, in the proportion of an ounce and a half of this bark, coarsely powdered, to two pints of water, boiled down one half. To increase the efficacy of this decoction, there was infused in it, for some minutes, a half ounce to six drams of *Alyxia Reinwardtii*, (Poeloesarie) of which the tonic action is more diffusible. Of this decoction there were taken, every hour, two spoonsful.

In the cases where the prostration of forces was universal and strongly marked, and the employment of volatile or diffusible stimulants was more indicated, infusions of the *Chloranthus inconspicuus*, (Krast-teolany,) and of the excellent valerian of Java, were beneficially employed.

Having once arrested the fever, it was essentially necessary to continue for some time the use of the *Cedrela febrifuga*, or of quinquina, in order to prevent relapses. M. Blume has observed that this fever must be treated, for the most part, like malignant intermittents, and that it was of great importance to employ means proper to oppose the return of new paroxysms. With this view, the Cedrela febrifuga might be mainly

relied on, a plant with which the estimable Dutch naturalist has recently enriched the materia medica. He assures us, in the fourth book of his flora of Java, that he has employed with the greatest success this bark, eminently tonic, in malignant intermittent and remittent fevers.

ART. V. *Account of a Case of Disease of the Lower Jaw and Face.* By JOHN AUGUSTINE SMITH, M. D. Professor of Anatomy and Physiology in the University of the State of New-York.

ON Thursday, the 19th day of July, I was requested by Doctors Dayton and Hart, to visit, in conjunction with them, Dr. Chambers, the proprietor of the celebrated remedy for intemperance. On inquiry, I was informed, that about twelve days before that time he had been attacked with a most excruciating pain in the lower jaw of the right side, near its middle: that for ten days there had been no fever, no soreness, and no swelling; but that within the last two days, the part had assumed, externally, the appearance of a common gum-boil. Various remedies had been applied, internal and external, local and general, in the hope of obtaining some relief from the torture which had been experienced, but without success. With the same view, and with the same result, a tooth, which it was supposed might be the cause of the mischief, was removed just before I entered the room. The extraction gave no pain—perhaps it produced no sensation—the patient sometimes making the one statement, and sometimes the other. I found him with his face slightly swollen, and his mouth ulcerated internally, but whether from the disease, or from the acrid remedies which had been employed, I could not tell. He was delirious, and spitting what appeared to be a solution of grumous blood, without any disagreeable odour. His pulse was moderate, and his skin cool. As he had been leeched, puked, purged, and blistered, and his mouth was much inflamed by scarifications of the gums and irritating applications, I recommended topical remedies of a soothing character, and the administration of opium. This plan was

followed, and he took 60 drops of the black drop, divided into two equal portions. Nothing at first could appear more successful than this mode of treatment. He passed a good night, arose in the morning, put on his clothes, and said he should go out and attend to his business. In the afternoon, however, the disease returned with great violence; and at 9 o'clock I was requested by the same gentlemen again to visit him, in conjunction with my colleague, Dr. Joseph M. Smith. We found him in a state of furious delirium, with an aggravation of all his symptoms, and making cold applications to his face. As he had, in the course of the afternoon, taken 30 drops of the black drop, it was impossible to decide how far the present symptoms were to be ascribed to that circumstance or to the disease. A continuance of the mild lotion to his mouth was advised, and the application of a large milk and bread poultice to his face was recommended, as the inflammation had now extended to the right temple and eye. Before any thing further was done, it was determined to wait until the effects of the opium should pass off.

The next morning the symptoms were found to be equally urgent. He was now directed to be cupped largely; a dose of calomel and jalap was prescribed, and a continuation of the poultice was ordered. But no relief was obtained, and the next day he expired. During the last thirty-six hours, the inflammation became erysipelatous in appearance, producing a striking resemblance between Dr. C. and the lamented Dr. Dana. The next morning I examined the body. Upon laying bare the lower jaw, I found it dead, and denuded of its periosteum from the root of the coronoid process to the posterior bicuspid tooth. Points of incipient suppuration were discovered in various places, and the masseter muscle was converted into a substance resembling hepatized and partially suppurated lung. Pus occupied the situation of the submaxillary gland, and all the contiguous parts were greatly diseased. The effused fluids were so acrid as to act on my instruments like an acid. The brain it was thought unnecessary to inspect.

The preceding case is, I think, worthy of record for its singularity; but I confess I do not see how a similar affection can be detected with any certainty in the first instance, or cured after its nature is ascertained. That the corrosive fluids of which I have spoken, were the cause of the patient's suffering, is probable enough; but that they should not have produced, at an earlier period, the ordinary local effects of inflammation, appears to me extraordinary. The case consequently, I think, must be considered as adding one to the many anomalies which the medical profession daily presents.

ART. VI. *General Views of the formation of Phosphuretted Hydrogen.* By LEWIS C. BECK, M. D. Professor of Chemistry, &c. in the Vermont Academy of Medicine.

IN the few observations which I shall make upon the interesting compound forming the subject of this article, I shall carefully examine the phenomena which attend its formation, and then deduce from them some general principles, which, although they may not be new, have not occurred to me in the course of my reading.

Phosphuretted hydrogen, or the hydroguret of phosphorus, is a peculiar gaseous compound, consisting of one proportional of phosphorus, and one proportional of hydrogen. It inflames spontaneously upon the contact of the atmosphere, burning with a bright flash.

For the production of this gas, it appears to be necessary that phosphorus should be presented to nascent hydrogen. The hydrogen is almost universally obtained from the decomposition of water, although analogy would induce us to believe that it might also be derived from that of sugar, and of other vegetable products.

The elements of water have a powerful attraction for each other; we are acquainted with but few substances which can effect their separation. The splendid discoveries of Sir Humphrey Davy made us acquainted with a class of bodies which possess this property in an eminent degree: I mean the me-

tallic bases of the alkalies and alkaline earths, which decompose water with great rapidity, uniting with its oxygen and liberating its hydrogen in the form of gas. These bodies, therefore, are admirably calculated for the present purpose. Some of these, moreover, unite with phosphorus, forming definite compounds, called phosphurets. And it is important to state, that these phosphurets rapidly decompose water, and evolve phosphuretted hydrogen. Such is the fact with regard to the phosphurets of potassium, sodium, calcium, &c. formed by heating these metals with phosphorus out of contact of air.

Let us now examine the circumstances which attend the more common methods of obtaining this gas.

1. One of the processes adopted in the laboratory, is to take phosphuret of lime, as it is commonly called, or phosphuret of *calcium* more properly, and to throw it into warm water; bubbles arise and inflame upon contact of air, and they are phosphuretted hydrogen. Now in this case the explanation is very easy. Phosphorus cannot decompose water, and it must therefore be combined with a substance which has the power of doing this. *Lime* has not; calcium has. Whatever of phosphuretted hydrogen, therefore, is produced in this way, must be the result of the action of phosphuret of calcium, and not of lime.

2. Another method is, to put some pieces of phosphorus into a retort filled with a solution of caustic potash, and to apply heat. In this case, the addition of heat enables the phosphorus to decompose the potash; a portion of it probably unites with the oxygen of the alkali, forming an acid, and another portion with its metallic base, forming a phosphuret of potassium. This last decomposing the water, furnishes the phosphuretted hydrogen.

3. Instead of caustic potash, the carbonate of potash and quicklime are sometimes employed in combination with phosphorus, with the same results; except that the evolution of phosphuretted hydrogen is not so rapid as in the former cases. The rationale is, in effect, the same as before. The carbonic acid of the carbonate of potash unites with the lime, and then the potash is acted upon by the phosphorus in the manner above explained.

If the above explanations be correct, we infer that for the production of phosphuretted hydrogen, it is only necessary to employ phosphorus and some metal, which metal, *per se*, possesses the property of decomposing water.

We can, therefore, obtain this gas:

1. From the phosphurets of ALL the alkaline metals; as potassium, sodium, calcium, &c.—by the mere addition of water.

2. From a combination of phosphorus and the oxides of these metals; as potash, soda, lime, &c.—by the application of a sufficient heat to enable the phosphorus to effect a decomposition of these oxides.

3. From phosphorus, and those metals which are usually employed in procuring hydrogen gas; as iron, zinc, &c. But as these metals do not decompose water with much rapidity, without the presence of some dilute acid, this must be added in the present case, and the process conducted in all respects as when we wish to obtain hydrogen alone, by means of these metals. The use of the acid in both cases is the same.

Such are the general views which I have deduced concerning the formation of phosphuretted hydrogen; which I believe the most minute examination will prove to be founded in truth.*

ART. VII. *Contributions to Medical Science.* By S. C. FARRAR, M. D. of Jamestown, Virginia.

CASE OF WORMS.

ON the 9th of March, 1822, I was requested to prescribe for a little negro child, aged two years, who had previously discharged several lumbrici from the stomach and bowels; and in whose case were most of the symptoms indicative of worms, viz. variable appetite, pain of the belly, fetid breath, grinding of the teeth when asleep, hardness and tumefaction of the abdomen, perturbed sleep, pricking of the nose, cough, and evening exacerbations of fever. He was immediately

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* American Journal of Science and Arts, No. 26.

put on a course of purgative and anthelmintic medicines, and discharged, at different times, upwards of an hundred round worms. But notwithstanding the removal of this immense number, and the most persevering use of the various medicines directed in such cases, his health gradually declined, his appetite became more variable, the skin assumed a pale ashy hue, (such as is presented in cachexia Africana,) abdominal pain was augmented, cough, fever and restlessness increased, and ultimately great debility with emaciation and œdema supervened. About three weeks previous to the fatal termination of the case, the cough suddenly assumed a most distressing character, the child screamed as if in the greatest agony, and in a few minutes was almost lifeless, the extremities cold, respiration feebly performed, pulsation in the radial and temporal arteries nearly gone, the head thrown back and eyes half closed. In this state he remained for half an hour although the most diffusible stimulants were exhibited, aided by the warm bath and friction. The above symptoms occurred at intervals of one and two and three days until the death of the child, which took place on the 21st of April. Having a great desire to ascertain the real cause of death, and to find, if possible, a clue to unravel the anomalous symptoms of this case, I obtained permission of the master to open the body. On cutting into the abdomen an immense number of round worms, varying in length from two and a half to six inches, was discovered in the stomach and intestines. The right lobe of the liver was then elevated, and the head of a worm was seen projecting from it, which, by the aid of a pair of forceps, was extracted. I then introduced a probe into the sinus from whence the worm had been taken, and following it with a scalpel, soon discovered eleven more, which were in like manner removed; these were partly in the sinus and partly in the gall bladder; the latter was nearly destitute of bile. On examining the parietes of the abdomen opposite the mouth of the sinus, where the head of the first worm had been seen, a small spot was perceived resembling an ecchymosis, and had been produced evidently by the efforts of the worm to penetrate the part. A small indu-

rated circle surrounded the mouth of the sinus, and was tinged with cystic bile, and on the upper and convex part of the liver were two small abscesses. As no preternatural communication between the gall bladder and duodenum could be found, the worms must have gradually enlarged the ductus choledochus; indeed this is the only way by which we can account for their presence in the gall bladder, and we know this duct is capable of considerable dilatation by the passage of biliary calculi. This case bears some analogy to the one recorded by Dr. Macauley, of Baltimore, in the Medical Recorder. Dr. M.'s patient was advanced in life, in consequence of which she was perhaps the better enabled to bear up under the great degree of irritation and debility arising from the suppurative process induced by the efforts of the worms to disengage themselves from the abdomen. In his patient the abdominal parietes ulcerated, a number of round worms were discharged, the part gradually healed, and she recovered; but the liver was not disturbed in function except in a secondary manner from irritative fever, while in my patient functional disorder of the liver was induced at an early period by the fever which supervened, and at a more remote period disorganization commenced and was kept up until death. The secretion of bile must have been diminished, and even the small portion secreted greatly obstructed in its passage from the gall bladder to the intestine, and hence the variable appetite, hence the frequent paroxysms of pain, and hence too the great and rapid emaciation. This case and Dr. Macauley's go to prove, that independent of the fever and other bad consequences resulting from the accumulation of worms in the human system, they may become the immediate cause of death by inducing lesions in organs important to life.

REMARKS ON SALIVA, AND THE BENEFIT DERIVED FROM SOLID FOOD IN IRREGULAR FEVER.

"Animal food affords that rich aliment in a state nearly prepared for supplying the deficiencies of the living system.

On the contrary vegetable food has a smaller proportion of nutritious matter in it, and requires for its separation a more complicated and tedious process of *maceration*, *trituration*, and *digestion*." *Bell's Anatomy.*

Is the saliva a necessary and important fluid in the process of digestion? We are induced to believe it is, first, from the indigestion, pallidity of countenance, and leanness of the body induced in those who use tobacco to excess, by which a large portion of saliva is wasted; secondly, from the number of salivary glands and the amount of saliva secreted;* and thirdly, from the fact that nature is always simple in her operations, and never performs by numerous organs, or a complicated process, that which she can accomplish by simple means. We admit that man is an omnivorous animal, and that he can subsist on vegetables, but contend that solid food is the most wholesome and appropriate diet for him, and that when properly masticated and mixed with saliva, it is more digestible than liquid. A great variety of articles have been selected for diet by the inhabitants of different countries, viz. potatoes, dates, chesnuts, gum senegal,† fish, &c.‡ But these different articles are of a solid nature, and in their mastication must elicit and become incorporated with a considerable portion of saliva. No class of men enjoy so much health as the Indians, the Dutch, and the Africans of this country. The former subsist on fish, scorched corn, and the flesh of wild animals. The Dutch principally on milk, butter, bread and cheese; and the Africans on corn, bread, and meat. Most instances of longevity in this country are found among the above classes, and we ascribe their health and longevity, first, to the simplicity of diet; secondly, to its nutritive properties; and lastly, to its admixture with a due portion of

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* The salivary glands, says, Nack, discharge a pint of saliva in twelve hours.—*Vide Bleumanback's Physiology.*

† Some of the Moorish tribes in Africa.

‡ The inhabitants of Kamschatka.

saliva. Indeed it would seem that in every period of life nature has made provision for the excitement of the salivary glands, and the discharge of this fluid. Milk is the common and appropriate diet of the infant, yet the exertion of the mouth in sucking must necessarily cause a considerable discharge of this fluid, and the milk is coagulated in the stomach before it undergoes digestion; and this appears to be a strong argument in support of the opinon that solid articles of diet are most conducive to health and strength, or why has nature provided for the coagulation of milk in the delicate stomach of the infant?

From these facts, are we not warranted in the conclusion, that solid articles of diet are best adapted to the wants of the system in health, and that certain conditions of the stomach in disease imperiously demand their exhibition. We wish not to be misunderstood. We will not advocate the necessity of exhibiting solid articles of diet in fevers of a decidedly phlogistic character, for in them our object is to reduce the system by every means of depletion in our power; and vegetable diet, as rice, sago, arrow-root, &c. being less stimulant and nutritious, are most appropriate. But we assert that patients, when convalescent from fever, are frequently, during the continuance of irregular fever, often cruelly and improperly debarred from articles of diet, which, used in moderation, would not be detrimental, but highly serviceable. We have sometime since been induced to believe that in many cases of fever, (when the patient is sensible) the stomach, more accurately than the physician, can point out the proper articles of diet. Do we not frequently see it craving those medicines which are best adapted to the removal of the existing fever? We have often witnessed the strong desire of patients labouring under inflammatory fever for cold water, acidulated drinks, and cool air, but do not recollect to have seen a single case in which they demanded stimulants until the fever had degenerated and assumed a typhoid character, when the inclination for cool liquids generally ceases, and a fondness for stimulants is engendered. If then the stomach so often admonishes us of

the propriety of using this or that particular medicine in fever, by what chain of facts or process of reasoning can we arrive at the conclusion that it is less to be depended on in the selection of diet? We know it is a common opinion, (and to a certain extent perhaps a just one,) among medical men, that in convalescence from fever the stomach, and all the chylopoietic organs, are in a debilitated condition, and therefore solid and stimulating articles of diet would be injurious. This is sometimes the fact, but the injury is frequently to be ascribed more to the manner of eating and the quantity consumed, than to the properties of the article. We have frequently indulged persons recovering from inflammatory fever in the use of meat and other solid food, (always however directing it to be well masticated and mixed with saliva) and have rarely known bad effects to result from the indulgence. In the rage for new discoveries, and the fondness for hypothetical speculation, the subject of diet has been most shamefully neglected by medical men. No remark is more sound and true, than that "man is an imitative creature;" and hence we too often follow the directions and sanction the opinions of our predecessors, without subjecting them to that patient and mature consideration which is so essentially necessary to the establishment of correct principles in medicine. We are too apt to place implicit confidence in the observation of great men; and from this cause, and a reluctance to reason and experiment for ourselves, we permit errors to be perpetuated. Who, before the experiment was made, would not have condemned the use of turpentine in burns, the copaiva in gonorrhœa, and laudanum in the hot stage of intermittents? As soon, however, as antiquated prejudices in relation to these medicines yielded to fact and experiment, they became common and favorite remedies. The country scarcely affords a physician who does not prescribe turpentine in burns; many use the balsam in gonorrhœa; and Dr. Chapman corroborates Lind's recommendation of laudanum in intermittents. And is it more inconsistent with long established opinion, to recommend solid articles of diet in irregular fever, when the strong inclination of the patient indicates their propriety? Is this opinion more at variance with sound reason than that which led to the use

of turpentine to an inflamed surface? We know that inflammations differ; that sedative applications are best adapted to some, stimulant applications to others; and if this be true in relation to diseased surfaces and their remedies, why may it not be true in relation to a diseased stomach and its diet? Whence then the propriety of prescribing the same routine of diet for all patients labouring under the same disease, without regard to their cravings? Do not patients labouring under the same disease often present a remarkable difference in regard to medicine; some retaining with evident advantage a particular drug, while others, with the same symptoms, will reject it? And can this evident difference exist as to medicine and not as to diet? Is it rational to say the same medicines are not always adapted to the same disease in different individuals, but the same articles of diet are? If the same disease in different persons from difference of habit, temperament, age, &c. will create different propensities as to medicines, are we not doing violence to common sense, to deny that the same causes will excite different propensities as to diet? Do we not frequently see patients with irregular fever manifest an inordinate desire for articles of diet which, according to received and long-established opinions, would be improper? But this craving is not more remarkable than the fact, that continued fever will remain for weeks, the patient require frequent bleeding, the skin hot, and yet the tongue be *clear* and *moist*. We have seen this in a continued fever, which lasted from seventeen to forty days, the tongue through the whole course of the disease *clear* and *moist*. But in regular fever, one of the most common occurrences is a furred tongue with more or less dryness and clamminess of the mouth; and if morbid action can produce so great a diversity of appearance in the tongue and mouth, why may not the same chain of morbid associations impart to the stomach a species of functional derangement which gives to solid and stimulant a decided preference over liquid and light diet? The man, long accustomed to the potation of ardent spirits in excess, at last brings the stomach into such a condition that sudden deprivation of it always endangers and sometimes destroys

life; and may not morbid sensations be engendered in the stomach by irregular fever, the removal of which may be most safely and effectually relieved by gratifying its demand for solid food? We have thrown out the above hints with the hope that they will at least have the effect of eliciting all the information and observations of other physicians on this subject; and under the confident belief that unnecessary abstinence is frequently enjoined on patients. It is immaterial with us whether we induce others to follow our directions or not, it is sufficient for our purpose to say we have frequently enforced them, and have rarely known any bad effects result.

[With much pleasure we give place to the following very able article by Doctor Drake, from the Western Medical and Physical Journal. We do it with the greater satisfaction, because it comes in direct support of doctrines uniformly maintained in this Journal, and which we were at some pains to elucidate and enforce in the review of Doctor Chapman's Therapeutics, published in our very first number. —*Ed.*]

ART. VII. *Observations on the Modus Operandi, and Effects of Medicines.* By DANIEL DRAKE, M. D. late Professor of the Theory and Practice of Medicine in Transylvania University.

BUT few subjects in the profession involve greater difficulties than the Modus Operandi of Medicines. The effects of almost every medicine are various—the mode of its operation complex and obscure. Were the human body a single molecule, homogeneous in structure and function, the laws of its relations with surrounding objects would be few and easily comprehended. But the reverse of this is true, and hence the inevitable failure of all who have sought to embrace, in a few general propositions, the principles which relate to this subject.

Is must be granted that some of these propositions are, on the whole, correct; as, for instance, that which pronounces

all medicines to be *alterants;* but this merely declares them active substances in relation to our systems, and leaves us ignorant of the variety of alterations which they can produce, and of the modes of that production, although these are the proper objects of inquiry. As the organs which compose the body have different aptitudes, and are variously acted on by the same agent, we shall find that the medicine which *excites* one function, may *disturb* another, *suspend* a third, and leave a fourth *unaffected;* and as the organs are associated and co-operative, if one be changed in its actions, others will likewise experience change: finally, every substance in nature, exerting upon us an action peculiar to itself, the changes, both primary and secondary, which are wrought out by medicinal agents, are exceedingly numerous. I shall proceed to consider in what way they are brought about.

This inquiry naturally divides itself into two parts:

1. How is it that a medicine applied directly to an organ, changes the mode of its existence?

2. In what manner does this change cause an alteration in the mode of existence of *other* organs?

With respect to the first, we can only say, that the effects of an external agent upon the functions of an organ, provided it acts neither mechanically nor chemically, are referable to the existence, in the organ, of the properties denominated sensibility and contractility, without one or both of which no phenomenon would follow its application. Beyond this, I presume, our analysis of the subject cannot be carried. A knowledge of the *quomodo* is evidently unattainable. We can only observe and register the feelings and symptoms which follow the contact of the medicine. These declare to us that some medicines *exalt* the sensibility and contractility, others *depress*, and others *pervert* them. The first are called stimulants or excitants, the second sedatives, the third irritants or alterants. But the last may either increase or diminish the vital properties, while they irritate, and hence results a complicated effect. I am aware that some therapeutists deny that external agents ever directly depress the powers and actions, either of the part to which they are

applied, or of those remote from it; and sustain their averment by saying, that every *active* substance must *necessarily* stimulate; that is, produce increased excitement. This, however, is assuming what should be proved. The relation is not between the agent and the excitement; but the agent and that susceptibility without which it would be inert.—Now it is just as possible to comprehend that a medicine may exhaust the susceptibility, as augment or pervert it; and hence we can as easily conceive of the existence of sedatives, as stimulants or irritants.

The second part of the inquiry is far more complicated. When we cast our medicinal agents upon the surface of one organ, we observe changes in the functions of many others, and sometimes of the whole. Now how are these changes effected? I answer that they are brought about in one or more of three modes.

1. By correspondence of function.
2. By dependence of function.
3. By absorption.

1. Correspondence of function is established and maintained by the nervous system. Without this bond of union and intercourse, all the organs would be like distinct animals, placed in juxta position, adhering to each other, and dependent for sustenance upon the same fountain; but unacquainted with each others' functions, enjoyments, or sufferings. There would, in fact, be no unity, nor concert, and of consequence no individuality. It is easy to perceive in what manner the organs are connected by the nervous system; but how that system enables them to hold communion, and act and re-act on each other, is one of the arcana of life. Of the fact, however, we are well assured; and with it we may connect many of the distant effects of our medicinal agents. Parts that are associated in health sympathize, when one is excited or tortured by the active substances which constitute our materia medica. A reference to this principle is by many considered a sufficient explanation of all that follows upon the administration of a medicine; and to such its modus operandi appears in an aspect of extreme simplicity.

If, however, the effects of a medicine were in reality propagated through the system by sympathy only, I could not allow to that propagation the simplicity which is claimed for it. When several different organs are disturbed by the application of a medicinal agent to one, it by no means follows that they all sympathize with *that one*. When disturbance is carried into a second organ, a third may sympathize with it, instead of the first, while a fourth may be agitated by either or all of the preceding; and thus the aggregate or constitutional effect, become the offspring of a complicated process. But this is not the only error of this comprehensive philosophy. Having shown, what no one will deny, that distant organs *may* be affected sympathetically, they consider it proved that they are affected in *no other mode*, than which a more obvious error could scarcely be committed. As well might they assert, that because a remote place can be reached over land, we *cannot* travel to it through the water or the air.

The facts which establish the sympathetic operation of medicines, prove *that* and *nothing more*. Another *kind* of evidence is necessary to demonstrate, that effects produced in a different mode, are not blended with these; and *that* testimony is wanting. On the other hand, believing that such effects have a real and most important existence, I shall proceed to consider the manner of their production.

2. Dependence of function, although but seldom referred to in explaining the propagation of impressions, either morbific or curative, is manifestly entitled to great attention, both from the pathologist and the therapeutist. Sound health requires reciprocity of action; and the well-being of the whole can only result from the well-being of all the parts. If one of these fail, some other must of course perform its office imperfectly, and when all are in debility and disorder, if one be restored, some other will immediately improve in its condition. Thus, morbid and healthy states of existence are disseminated throughout the system, as irregular and regular movements are propagated through a complex machine, by mutilating or mending any of its parts.

To apply this principle to the modus operandi of medicines, it is only necessary to refer to the influence which the great organs of the body, as, for example, the stomach, the heart, the brain, the liver, and the skin, exercise in its economy. If any one of them falters in its duty, some other—perhaps several—fail in theirs; it being a law of the system, that every organ shall perform a certain part, to enable the rest to perform their offices; and if any one of them is changed in its action, the others, under the requirements of the same law, are changed in theirs. Thus, if an external application invite blood to the surface of the body or repel it, the organs of the interior experience corresponding abstraction or repletion. If the liver is made to secrete more bile, the bowels are stimulated into increased action. If the powers of the heart are augmented, the various organs are injected with greater momentum, and assume a higher tone. Now the effects, of which these may serve as specimens, are undoubtedly blended, in every case, with those which arise from correspondence of function. Thus while an external stimulus promotes cutaneous circulation, and draws from the plethoric organs within their superabundant blood; it imparts to the skin an excitement, which, through the medium of the nervous system, revives the oppressed powers of those organs; and while mercury causes a flow of bile, that stimulates the bowels to a livelier peristaltic action, they feel, *sympathetically* and beneficially, the higher and healthier function of the liver, which that medicine has produced. Other and more striking examples of the union of correspondence of function and dependence of function, in transmitting the impressions made by curative agents, could be cited, but these are sufficient for illustration.

3. The last mode in which medicines produce an effect in parts remote from that to which we apply them, is by being absorbed into the sanguiferous system, circulated with the blood, and finally eliminated through the excretory organs. The time has passed away, never to return, when this was regarded as the only mode in which a medicine can make itself felt in parts remote from the place to which it is applied; but

that it is *one* of them, may be regarded as an established truth. I am apprised that there are a few exclusive sympathists, who "cannot conceive of the absorption of medicines," any more than a humoralist of the Boerhaavian school could conceive of their acting without being absorbed; and I feel the full force of the *petitio principii*, that the living body will not tolerate the absorption of active substances. But what the living body will or will not tolerate, we can only know from experiment and observation; and by these we learn, that active substances thrown upon the mucous membranes, and, under certain circumstances, upon the skin, are absorbed, do circulate, cause disturbance of the functions, and are finally eliminated through some of the excretory outlets of the sanguiferous system: Outlets in which reside the true vires conservatrices naturæ, and which would be far less necessary, if nothing could pass into the system, that might not remain there. It is not my design to exhibit a catalogue of the substances which, taken into the stomach, have been detected in the blood, or in the secreted fluids of the kidneys, lungs or skin. More than twenty might be enumerated, without referring to writers of a period, when experiments in physiology were conducted less rigidly than at the present time.—Indeed, facts of this kind have become so numerous, and are so authentic, that no one can venture to deny them.

It is asserted, however, that none of the curative effects of medicines are attributable to their absorption; but how can this assertion be sustained? When thrown into the blood-vessels in our experiments, they produce striking effects, and does this not favour the opinion, that when absorbed, they must be operative?

But it is said, that before they can be absorbed, they must be assimilated; that is, decomposed, and their ultimate elements united with those of our food into chyle. Here, again, is assertion without proof or even plausibility. If medicines are decomposed, and their ultimate elements become chyle, how can they ever re-appear? If the particles of oxygen, azote, and potassum which, united in certain proportions, constitute nitrate of potash, be once separated and made compo-

nent parts of the chyle and blood, what should induce *them*, more than any other particles of the same kind, to re-unite in the urine and form nitre?

Further. Several medicines, that appear in the excretions after being swallowed, such as camphor, oil of turpentine, and the balsam of copaiva, are vegetable compounds, the products of vegetative action,—and if decomposed into their elements—oxygen, hydrogen, and carbon—can never be regenerated, but by subjecting those elements a second time to the vegetable chemistry that first combined them.

It has been said that medicines cannot be detected in the serum of the blood, and are, therefore, not absorbed, or have lost their formal state. What I have just said, would seem to be a sufficient reply to this affirmation, but a few remarks may not be amiss:

1. Several medicines, such as the prussiate of potash and carbonate of soda, *can* be detected in the blood.

2. Many substances mixed with the serum after it has been drawn from the body, cannot be detected by our tests, even when the proportion is greater than it can be by absorption.

3. Substances, when absorbed, do not accumulate in the blood-vessels; but begin to pass out of the system through the lungs, kidneys, skin, and probably the liver, almost as soon as absorption commences; and hence the quantity existing in the blood at any one time, is always small.

4. For the greater number, as for example, most of the native vegetable compounds, we have no certain tests. Nevertheless, it is held by some that the change which medicines undergo in being absorbed, is not one of absolute decomposition, but only such a change as prevents their entering the blood in a *formal* state. But whether their state be *formal* or *informal*, this may be predicated of them—that they are, or are not, essential components of the blood. If the former, they have been decomposed and assimilated, and of course can never be revived—they have been dissolved into nutriment; if the latter, they are foreign bodies—for every thing contained in the sanguiferous system, that is not

blood, is extraneous matter;—and they may therefore be active.

Concerning this state *formal*, and the state *informal*, our information is not so full as could be desired. The subject is rather an obscure one. When carbonate of soda, after its copious administration, is found to impregnate the serum of the blood and the urine, the elements which compose it—oxygen, carbon, and sodium—must exist separately, or united into carbonic acid and soda, or into greater consolidation, so as to constitute the salt in question. It would be interesting to know which of these is the *informal* state which the vital principle is pleased to tolerate. I should think, on the whole, that this principle would have least difficulty in managing the last. To vulgar observation, the carbonate of soda is less irritating than either of its immediate constituents; and these, again, rather milder than the three simple substances of which they are composed; so that on the whole, until more fully instructed, we may venture to regard the carbonate of soda as the *informal* state in which carbonate of soda can exist in the blood. In reference to simple bodies, the inquiry is less difficult. When for example, sulphur enters from the mucous membrane of the stomach, and makes its exit through the surface of the body, it certainly has not the form of an octahedron, in which we find it in the earth; and, *therefore*, is not in a formal state; but that the atoms of this elementary substance are the same, whether in the earth or in the blood, we are compelled to believe, as long as we consider it an undecomposable body. The changes, only apparent, that simple substances can undergo, are those of composition, not decomposition: They may be disguised, but cannot be destroyed.

We are told, that if we believe in the absorption of one medicine, we should believe that all are thus received; while, with respect to the greater number, there is no evidence of their absorption. We should believe according to the facts. These inform us that some medicinal agents reach the blood, but others may not. Many articles may offend the absorbing vessels, and not be taken up; others may pass out through

the liver, and never reach the vena cava; some may pass off in the lungs, and not arrive at the left side of the heart—others, arriving there, may be rapidly eliminated through the kidneys or the skin: while a few, not stimulating any of the emunctories with energy, may continue for some time to circulate in the system, and even be deposited in its tissue as happens with the preparations of silver. On all these points, every external body in nature is peculiar; and a knowledge of its relations with the living system can only be acquired by observation.

But if medicines were absorbed, they could not, it is averred, produce their specific effects. Why? And where is the evidence that they could not? When thrown into the stomach and bowels, we observe certain phenomena to follow, and I know of no proof that a part of them are not owing to absorption. It cannot be said that they are solely referable to correspondence and dependence of function, unless it be proved that none of them spring from absorption. If we do not obtain the same results whether we inject medicines into the veins, or place them on a sensible mucous membrane, it proves nothing against the doctrine of absorption. In the first place, when thrown upon a sensible surface, the impression which they make is propagated to distant parts by sympathy and dependence of function, and the effects thus generated are blended with those to which a subsequent absorption gives birth. Secondly; When injected into a vein, they are mixed with a small quantity of blood, which goes, thus highly impregnated, directly to the heart, and throws that, and the other great organs, into a state of irritation, which could not result from the introduction into the blood-vessels of an equal quantity of foreign matter, by healthy absorption. Indeed, such is the mechanism of that absorption which I suppose to introduce medicinal agents into the circulation, that it is quite impossible for them to reach the heart in a concentrated state. Thus, if taken up by the veins of the stomach, they are mixed in the trunk and hepatic extremities of the vena portæ, with nearly all the blood of the cœliac and two mesenteric arteries, before they are allowed to reach the heart;

and must therefore exert on that organ effects very different from those produced in our experiments. But we do know from experiment, that many articles may be so injected into the venous system, as to produce effects nearly identical with those which follow their introduction into the stomach. Thus, caster oil will purge, tartrate of antimony vomit, emetin produce coma and congestion of the lungs, nitre increase the flow of urine, and opium occasion sleep, when they are thrown directly into the venous blood.

It is remarkable, that the energy with which these and other medicines act when injected into the veins, has been cited as an evidence that they are not absorbed. Does it not rather prove the reverse? It shows that the system is extremely susceptible to impressions of this kind. If the injection of medicines into the blood produced no effects, it would certainly demonstrate that they never acted in consequence of being absorbed.

Medicines, when absorbed, are either suspended or dissolved, in the serum of the blood, and with it carried through the system. They are thus made to act upon a surface incomparably more extensive than while they remained in contact with the mucous membrane of the stomach; and that this vascular surface is extremely sensible to their impress, we have just seen. All the conditions necessary then to a decided effect, are present, and why should that effect not be produced? It is asked, if they act after being absorbed, what it is that determines a narcotic upon the brain, a diuretic upon the kidneys, and a chologogue upon the liver? I reply, that we do not know, any more than we know, why it is that the impression which an agent makes on the stomach, should be transmitted to the brain, kidneys, or liver, instead of the lungs or uterus. And this reply I hope will satisfy every exclusive sympathist.

To conclude this part of the subject, I am compelled to believe, that some medicines are absorbed, do retain, in part at least, their active qualities, are diffused throughout the system, act upon the solids as foreign bodies, and are finally assimilated or discharged with the excretions;—in which they are

discoverable by our tests, more readily than while in the blood, simply because they are less diluted.

It remains to inquire, whether this mode of operation can be united with the other two which I have acknowledged.

Why can it not? Why should they not co-operate? The stomach was not created as a receptacle for medicines; nor were ipecacuanha and guaiacum secreted for remedies.—These and the other articles of the materia medica, are resorted to, because good effects, under certain circumstances, are derived from their administration. Experience has taught us this. But experience has not informed us, that if they affect the stomach, into which, generally, they are first received, they cannot, *therefore*, reach other organs of the body, and act on them. On the contrary, both experiment and observation agree in demonstrating, that as long as a medicinal agent remains in contact with *any* part of the living body—the stomach or bowels, the liver, the heart, the brain, the kidneys, or the skin, it continues to act. It is indeed under a physical necessity to be operative; and from this law, taken in connection with the fact, that medicines are absorbed, we may deduce *a priori* evidence, that their modus operandi is not simple, but complicated. To establish this proposition is the chief object of my paper. I will proceed to illustrate and confirm it by a few examples.

When emetin is taken into the stomach in fatal doses, it first affects that organ unfavourably, and at length produces coma and death. On examining the dead body, the lungs are found greatly engorged. When injected into the veins, coma and death are equally the consequence, and the lungs are found in the same engorged condition. Now as those viscera of the head and chest, in the latter experiment, are not affected by their association with the stomach, but by the direct action of the injected poison; we should, I think, believe that in the former case it is absorbed and carried to them, after having produced its first impress upon the stomach.

Again, sulphur applied to the surface of the body, cures many of its diseases: administered internally, it is known to reach the skin, and produce equal effect: but at the same time it removes constipation and betters the condition of the digestive organs, so often impaired in cutaneous diseases. Between these organs and the skin, however, there is an intimate reciprocal sympathy; so that the improved health of the former is necessarily followed by amendment in the latter. We are thus enabled to understand why sulphur is more beneficial in some cutaneous maladies, if given internally, than applied externally. Its curative operation begins with its impress on the mucous membrane of the stomach, and terminates with its action in the skin, as it makes its exit from the system. Its modus operandi equally involves sympathy and absorption.

The mode of action and effects of opium are still more complex and diversified. When taken in a large but not deleterious portion, the following are its characteristic effects.

1. The excitement of the system, at large, is exalted; the contractions of the heart are rendered more frequent and vigorous, and the cerebral functions more animated.

2. Drowsiness presently supervenes, the organs of sense become obtuse, the functions of the brain are reduced in energy, and the action of the heart is rendered slow and deliberate, with a soft and full pulse.

2. Slight diaphoresis, with itching, terminates the series of effects.

Here we have many successive constitutional disturbances, and they afford *prima facie* evidence of a complicated modus operandi. There is, I think, but little to require or sustain the belief, that they all spring immediately from the impress of opium on the mucous membrane of the stomach. That the first are referable, directly and indirectly, to such impress is extremely probable; but the second, it appears to me, arise from the transmission of the medicine to the heart and brain, and other internal organs; the last from its elimination through the skin.

Thus the medicine acts on the stomach as an excitant, and by *correspondence of function*, propagates its effects to the brain and heart. They being excited, transmit to the organs over which they preside, and reciprocally to each other, an increasing quantity of their respective influences, and hence, by *dependence of function*, more exalted vital properties and a higher grade of excitement, manifest themselves in the system generally. At length the medicine is *absorbed*, and enabled to act *directly* upon the brain and heart, when the sensibility and contractility of these, and the other organs, are diminished, and the second class of effects which I have enumerated ensue. Finally, it is thrown out of the system, through the skin, and some disturbance of feeling and function in that organ, is the consequence of its presence.

Let it not be said that in contending for these different modes of action, I am multiplying causes beyond the requisitions of the case. The effects to be explained are numerous; and, regarded as the product of a single proximate cause, inconsistent with each other. No rule of philosophysing requires us so to consider them. Masses of phenomena should be analysed, until the various causes which produced them are laid open to our view; when they are to be admitted, whether they be few or many.

I shall close with a few reflections naturally growing out of what has been said.

Why are the constitutional effects of medicines, when applied to the skin, the nares and the rectum, so limited and uncertain, in comparison with their effects when received into the stomach, or injected directly into a vein? The skin and scheiderian membrane, are acted on with energy by a great number of articles; and so irritable is the rectum, that substances which the stomach will quietly retain, often produce great irritation, and are speedily rejected from that bowel. Should not this difference be, in part, ascribed to their being absorbed from the stomach, more than from those other surfaces? I think it should.

Several medicines, for example, the bark, digitalis, the squill, and super tartrate of potash, produce very few of

their distant and constitutional effects, when they purge. This is scarcely explicable on the sympathetic theory alone; for they impress and irritate the mucous membrane of the stomach and bowels, when they purge, as well as when they do not; but if purging takes place, we cannot expect absorption to be performed, nor the constitutional effects, as far as they depend on the introduction of these medicines, or their active constituents, into the blood, to ensue.

It is not uncommon, after a few experiments with a new medicine, to decide that it belongs to the class of stimulants, sedatives, narcotics, diuretics, or some of the other arbitrary divisions of the Materia Medica; and by this reference, all further examination is generally foreclosed. We have ascertained that it is an errhine or a vermifuge, and that is enough. This proceeding goes really, if not avowedly, on the idea, that the medicine which produces *one* striking effect, produces no other; or that articles which agree in the main point, agree equally in their subordinate effects; both of which are errors that a physician cannot adopt without danger to his patient.

Finally, much has been written on the subject of stimulants and sedatives. The great effort has been to prove that the latter have no existence; but those who have undertaken the task have too often overlooked the multiplicity of properties which belong to a single medicine. They have been captivated by an imaginary simplicity. Inverting the rules of philosophical logic, they have drawn analogies from the minor to establish the major. Observing that tartarized antimony, digitalis, nitre, and the vegetable acids, irritate the parts to which they are applied, the conclusion has been immediately drawn, that in their general operation, these medicines are stimulants. But an unbiassed attention to that operation will convince us, that the topical is no index to the constitutional impression. That whatever may be said of the former, the latter is unquestionably sedative; and hence that we may employ those medicines to lower the powers and actions of the general system, with as much confidence as if their local impression were the reverse of what it is.

With these remarks I close this desultory essay. I do not pretend that it contains any new ideas. My chief object has been, to recognise and sustain certain principles which I believe to be correct, though not universally adopted; and this, I hope, has been in some degree accomplished.

Cincinnati, August 1827.

ART. VIII. *Report of Diseases treated at the New-York City Dispensary.* By JOHN I. GRAVES, M. D. one of the Physicians to the City Dispensary.

THE diseases of the summer months have not offered much worthy of remark. There have been fewer cases of bowel affections among children prescribed for at the institution, than in former seasons; and these we think have been less severe than those met with during the summer of 1825. Among adults we have seen many cases of dysentery, but attended with nothing peculiar, or requiring particular notice. The plan of treatment has been the same as that detailed in last year's report.

The *Fevers* in most cases have in the beginning been intermittents, but they in a few days assumed a remittent form of a low type, attended with much torpor of the system, particularly noted in the chylopoietic viscera. The pulse in general has not been much accelerated, but rather exhibiting the wiry feel, and easy compressibility met with in diseases of irritation. The tongue has shewn an early disposition to become parched, and when the disease has been protracted over a week, has exibited a smooth, glassy, dull red appearance. At this stage we have noticed also a disposition to cough, and a difficulty in swallowing, with a dull, uneasy soreness about the epigastrium and umbilicus. The skin has shown a more than usual degree of dryness, and has not readily been affected by diaphoretics. These symptoms clearly show the seat of the greatest derangement, consequent upon the atmospherical influence so peculiarly and powerfully affecting the system during the warmer months.

We have observed above that *diaphoretics* have availed but little in producing a natural state of the skin. In this class of remedies we have lost a general degree of confidence, and with safety may say that they scarcely deserve any higher place in the materia medica than minor adjuvants to those medicines which seem particularly adapted to produce a healthy action in the secretory vessels of the liver, stomach, and intestines. We think that too much confidence is often placed in this class of remedies. This confidence, we may be permitted to suspect, has often led to a neglect of the cause of the dryness of the skin, and while attention has been in too great a measure confined to that, the internal organs have been suffered to acquire increased derangements, and eveu disorganization. The state of the skin we must look upon as simply a symptom of internal disorder, and with this view direct the attention to the cause rather than to the effect. The knowledge that we possess of the powerful sympathy existing between the skin and chylopoietic viscera is of the first importance, and deserves to be borne in mind in the treatment of fevers. The skin will become natural in proportion as we remove the internal derangements, and these in our climate principally affect the liver in the first place, and the other organs connected functionally with it. Purgatives and emetics are chiefly relied upon to produce this effect. The former we consider of paramount importance, and among the first of these we place calomel. In due time we have found that this, in connection with castor oil, and other medicines of the same class, act as the best diaphoretics.

During the early part of the season many cases of *intermittents*, (not assuming the form which we have already described,) were met with, irregular both as to the paroxysm itself and the day of its appearance. It is a singular circumstance, for which we cannot account, that these cases appeared mostly in the higher parts of the city, while the regular intermittent was found to occur in the lower parts, and in such places where the soil is artificial, or what is familiarly called "*made ground.*" The cases of which we were speaking were attended with much gastric irritation. Emetics

were extremely beneficial a short time before or immediately upon the appearance of each paroxysm; after which the antimonial solution was given, and continued with an occasional purgative of calomel during the first, second, and third days, or until the tongue, which in the beginning was very foul, began to clear off. Quinine, and indeed every other tonic, proved injurious if given before the disease began to lose its irregular form, and assume a more equal length in its stages.

Since our last there have been many cases of *Measles*.—They have been generally of a mild character, although many put on a more severe form, accompanied by symptoms of tracheal and pneumonic affections. Purgatives during the febrile stage have been given by some with much advantage, rendering, it is said, the course of the disease milder, and unattended with danger. In our experience, however, the administration of active medicines during the appearance of the eruptions has not been found to afford as happy results as when left almost entirely in the hands of nature. Our practice has been, on the day (when in the regular course of the disease) the eruption would make its appearance, to give an emetico-cathartic, with a pediluvium. This seemed to relieve the high state of excitement which is observed to take place on the day of the eruption, principally by equalizing the balance of the circulation, relaxing the external surface, and preventing or relieving the lungs from congestion. These effects were kept up by an equable temperature of the room, and confining the patient entirely to bran or flaxseed tea, acidulated with lemon juice. When there was soreness about the throat or chest, liniment was applied freely. In no instance have we found a necessity for the use of blisters; and indeed it may be said, that in this disease, when attacking children, they have decidedly an injurious effect. Without free depletion, either by purgatives or the lancet, previous to their application, they add to the excitement already existing. This is an established fact. With the views which we have gained practically, depletion during the active appearance of the eruption, produces a disposition in the disease to take on

what is called a typhoid tendency, materially and injuriously affecting the regularity of its course. When we have seen the eruptions retaining their bright appearance after the fourth day, or disappearing before that time, or when they begin to fade and again re-appear with a darker shade, as is generally the case, there is, in almost every instance, serious cause of alarm. Now, we think that we have observed that any depletion further than what is the effect of the powers of the system, during this time, always causes this irregularity and its consequences.

After the eruption has gone through its course regularly for five or six days, and the appetite begins to return, we then have administered a cathartic of oil, and if cough remain, a simple expectorant. This plan is simple, and in the disease, as it almost always appears among us, will be found sufficiently active.

Among several cases of *Croup*, there was one in which the evil effects of the application of blisters to children has strengthened the opinion which we have long entertained.—We must confess that among the many cases which have fallen under our notice, we have not seen one where we have thought that they have proved beneficial, the disease being of an acute character. The extremely sensitive state of the nervous system in young children, bears badly the excessive irritation caused by this remedy. The high state of arterial action already existing in inflammatory affections, and the rapidity with which disease runs its course in such subjects, are easily forced to a dangerous extent by any cause capable of adding to the existing excitement. If any simple accidental agent may produce this effect, as we often find that it does, even to a fatal termination, it may be supposed that reason alone would lead to a conclusion that this remedial application would prove injurious. Reason, however, is not always to be relied on; for the arguments whence we arrive at what may be thought its dictates, are often fallacious. It is from observation that we have formed our opinion. Exclusive of the irritation, the skin of children is of such delicate organization, that the blistered surface very readily takes on a gangre-

nous state. If this do not prove fatal in every case, it very powerfully adds to the demand upon the powers of the system, whereby the force required to overcome the original seat of the disease, is injuriously lessened. The case of the child affected with croup, to which we referred, is an instance of this. The disease had progressed to its second stage. After the free admission of emetics, the physician in attendance ordered a blister to be applied to the throat. When procured, it being thought too large, the mother was directed to divide it; through negligence this was not done, but the whole laid on. It produced its usual effect. In a short time after being removed, it began to assume a bad appearance—gangrene followed—and death finished the scene. We recollect a severe case of ophthalmia which we saw three or four years since. It exhibits the injurious effects of blisters in increasing local inflammation and a general irritation. The physician, (who was an old and experienced practitioner) after the free administration of purgatives and emetics, which gave relief, directed blisters to be applied behind the ears. The eyes became worse, and the febrile excitement was increased; depleting means were again used with similar benefit as in the first instance. After three or four days the surfaces behind the ears began to heal, but as the eyes were slowly but sensibly getting better, other blisters were applied; the consequence was, that the eyes were as bad in twelve hours as they were the week before. The mother observed this, but the plan was persisted in, for the books said so, and it was a usual remedy. Finally, the eyes were only cured when these were laid aside, and antiphlogistics were alone administered.

If it were necessary we could adduce other cases, and all running nearly the same course; showing strongly, we think, that blisters are materially injurious as *contra-irritants* in young subjects laboring under acute inflammatory affections.

REVIEW.

ART. I. *Transactions of the American Philosophical Society, held at Philadelphia, for promoting useful Knowledge.* 8 vols. 4to. Philadelphia. Vol. 1, 2d edition, 1783; Vol. 2, 1786; Vol. 3, 1793; Vol. 4, 1799; Vol. 5, 1802; Vol. 6, 1809; Vol. 1, New Series, 1818; Vol. 2, New Series, 1825.

PHYSICIANS have always been among the most zealous and efficient supporters, of scientific associations. Every European institution indicates this in the catalogue of its memoirs, and the narrative of its discoveries.—Nor have they confined their investigations to what is strictly medical. The natural sciences, those interesting adjuncts to a complete professional education, have been intensely and successfully studied; and if we are indebted for many of the splendid discoveries in Chemistry to talents out of the profession, it must at the same time be conceded, that the triumphs of this modern science were prepared in the investigations of the older physicians, and have been followed with no lagging step by their successors.

The numerous and important papers to which we have alluded, are a constant subject of reference with the well-read student. Some, indeed most of them, have been transferred to our elementary works, and form part of the common stock of knowledge which we now enjoy. Occasionally a few are forgotten, and furnish opportunity for some fancied "genius" to make "discoveries," thus indicating at once his ignorance and his presumption.

There is indeed no literary quackery more prevalent at the present day than that of presenting common-place remarks in a somewhat new form, and either interspersing them with extracts from various authors, the references to which are conveniently furnished by some laborious and honest writer of rather antiquated standing, or what is far more common, because it appears more original, borrowing largely without acknowledgment. But while we are struck with the intellect and intelligence of the author, an examination of some earlier writer developes the source of this borrowed light. "*They quote nobody,*" (says Gibbon, in speaking of a parallel case,) "*according to the last fashion of the French writers.*"

We confess that we have taken a "retrospective review" of the transactions of the oldest scientific society in our country, somewhat with an intention to point out priority of remark, if not originality of discovery, wherever they shall appear due. This however, although a just, must necessarily be an incidental object. We are induced by other motives, which we trust our readers will approve.

The Transactions of the American Philosophical Society are now contained in eight quarto volumes, published during an interval of nearly half a century. We are informed, and we believe correctly, that complete sets can hardly at present be obtained; and even if they could, the numerous papers on other subjects, not connected with our science, prevent them from being readily purchased by members of the profession.—Under these circumstances we have thought that an analysis of the medical papers scattered through the volumes, might prove interesting as well as useful. It will recall the names of some of our medical ancestors,—men from whom the honour cannot, by any fraud, be taken, of having been the earliest in prosecuting the science amidst difficulties which we cannot sufficiently appreciate. We need hardly indicate its further value as furnishing a convenient means of reference.

We shall arrange the papers in question under the following titles:

Anatomy and Physiology.
Surgery.
Materia Medica.
Toxicology.
Practice of Physic (including the Causes of Diseases) and Miscellaneous.

ANATOMY AND PHYSIOLOGY.

Under this head may be noticed eight papers.

1. ***Observations on the processes of those Ethmoid Bones which originally form the Sphenoidal Sinuses.*** By CASPER WISTAR, M. D. President of the Society, Professor of Anatomy in the University of Pennsylvania. Read November 4, 1814. Vol. I. New Series, p. 371.

"It had been long believed that the Sinuses, or cavities in the body of the Os Sphenoides, were exclusively formed by that bone, when Winslow suggested that a small portion of the orbitar processes of the Ossa Palati contributed to their formation.

"Many years after Winslow's publication, Monsieur Bertin described two bones which form the anterior sides of those sinuses, and contain the foramina by which they communicate with the nose.

"These bones he denominates "Cornets Sphenoidaux," and states that they are most perfect and distinct between the ages of four years and of twenty; that they are not completely formed before this period, and that after it, they appear like a part of the Sphenoidal bone. According to his account they are laminæ of a triangular form, and are originally in contact with the anterior and inferior surface of the body of the Os Sphenoides, so that they form a portion of the surface of the cavity of the nose. He believed, that as they increase in size, they become convex and concave, and present their concave surfaces to the body of the sphenoidal bone, which also becomes concave, and presents its concavity to those bones, thus forming the sinuses.

"This account of Mr. Bertin has been adopted by Sabatier, and also by Boyer, who has improved it by the additional observation, that these triangular bones are sometimes united to the ethmoid, and remain attached to that bone when it is separated from the Os Sphenoides. Bichat and Fife have confirmed the description of Boyer.

"The specimens of Ethmoid and Sphenoid bones, herewith exhibited to the society, will demonstrate, that in certain subjects, about two years of age, there are continued from the posterior part of the cribriform plate of

the Ethmoid, *two Hollow Triangular Pyramids* which, when in their proper situation, receive between them the azygos process of the Os Sphenoides.

"The internal side of each of these pyramids applies to the aforesaid azygos process; the Lower Side of each forms part of the upper surface of the Posterior Nares; the External Side at its basis is in contact with the Orbitar Process of the Os Palati. The base of each Pyramid forms also a part of the surface of the Posterior Nares, and contains a foramen which is ultimately the opening into the Sphenoidal Sinus of that side.

"In the Sphenoidal Bones which belong to such Ethmoids as are above described, there are no cells or Sinuses; for the Pyramids of the Ethmoid bones occupy their places. The azygos process, which is to become the future septum between the Sinuses, is remarkably thick, but there are no cavities or sinuses in it.

"The sides of the Pyramids which are in contact with this process are extremely thin, and sometimes have irregular foramina in them, as if their osseus substance had been partially absorbed. That part of the external side of the Pyramid which is in contact with the orbitar process of the Os Palati is also thin, and sometimes has an irregular foramen, which communicates with the cells of the aforesaid orbitar process.

"Upon comparing these perfect specimens of the Ethmoid and Sphenoidal Bones of the subject about two years of age, with the Os Sphenoides of a young subject who was more advanced in years, it appears probable that the azygos process and the sides of the Pyramid applied to it, are so changed, in the progress of life, that they simply constitute the septum between the Sinuses; that the External side of the Pyramid is also done away, and that the Front Side and the Basis of the Pyramid only remain; constituting the Cornets Sphenoidaux of M. Bertin.

"If this be really the case, the origin of the Sphenoidal Sinuses is very intelligible."

2. *Some account of a motley-coloured or pye negro girl and mulatto boy, exhibited before the Society in the month of May*, 1784, *for their examination.* By Dr. John Morgan, from the history given of them by their owner Mons. Le Vallois, Dentist of the King of France, at Gaudaloupe, in the West Indies. Vol. II. p. 392.

Adelaide, the girl in question, was the daughter of two blacks, natives of Africa. She was at this time two years old, of a clear black colour, verging to brown, "except that she has a white spot bearing some resemblance to an aigrette, the point of which is at the root of the nose, and it rises into the hair above the forehead, of which it occupies about an

inch in width from the margin to the fontanelle. In this part the colour of the hair is white, and it is curly like the hair of negroes in general." In the middle of the forehead, and in the aigrette, was a black spot. About one half of each eyelid, both upper and under, was black, while the remaining half (towards the nose) was white. On the chin also, was a white spot, stretching below to the upper part of the throat. The body generally was of a black colour; the arms, however, at the upper and middle parts were white, interspersed with black spots.

Some of these black spots were, on close inspection, found to diverge into radii, like a star. The skin, however, was soft and smooth. The health of the child was good, and her form and features beautiful and animating.

The pyed mulatto boy was about six months older than Adelaide, and the fruit of a connexion between a negro woman and a white man, an European. He also had a white aigrette on his forehead: the hair, however, on that part was white, mixed with black. The stomach and the legs, from two inches above the ankles to the middle of the calf of the legs, were entirely of a beautiful lively white, and there was also a white spot in the upper part of the penis. Over the white parts of the legs was a light white down, longer and thicker than children commonly have at this age.

3. *Observations intending to favour a supposition that the black colour (as it is called) of the Negroes, is derived from the Leprosy.* By Dr. Benjamin Rush. Read July 14, 1797. Vol. IV. p. 289.

Many facts, says our author, recorded by historians as well as physicians, show the influence of unwholesome diet in having produced the leprosy in the middle and northern parts of Europe in the 13th and 14th centuries. The same cause, combined with greater heat, more savage manners, and bilious fever, probably produced this disease in the skin among the natives of Africa. Other circumstances render this supposition probable.

1. The leprosy is accompanied in some instances with a black colour of the skin. Dr. Thiery in his account of the diseases of Asturias, in Spain, after mentioning that there are twenty hospitals for lepers in that province, observes that one of the species of the disease is termed the *black albaras* of the Arabians. "The skin becomes black, thick, and greasy. There are neither pustules, nor tubercles, nor scales, nor any thing unusual on the skin. The body is not in the least emaciated. The breathing is a little difficult, and the countenance has some fierceness in it. They exhale perpetually a peculiar and disagreeable smell."

2. The leprosy is described in the Old Testament, and by many ancient writers, as imparting a preternatural whiteness to the skin. Travellers in tropical climates inform us that this is still prevalent, and is perpetuated through many generations. Hawkins, who visited the interior of the African continent, mentions that the individuals affected with this whiteness are destitute of the black pigment in the eye, and their hair is red or ash-coloured. Yet they are born of black parents, and have all the features of the other inhabitants.—The difficulty which naturally suggests itself that both these states cannot originate from a leprous taint, is avoided by saying, that "it is in strict conformity to the operations of nature in other diseases. The same state of malignant fever is often marked by opposite colours in the stools, by an opposite temperature of the skin, and by opposite states of the alimentary canal."

Bougainville also relates a fact indicating a connexion between the black colour of the negro and the leprosy. He visited an island in the Pacific, where the inhabitants were composed of negroes and mulattoes. They had thick lips, woolly hair, and were sometimes of a yellowish colour.—They were short, ugly, and most of them infected with the leprosy.

3. The leprosy sometimes appears with white and black spots blended together in every part of the body. Such a state of skin occurred to a black man in Virginia.

4. The leprosy induces a morbid insensibility of the nerves. This is very striking in negroes.

5. Lepers are remarkable for having strong venereal desires. This is universal among the negroes, and hence their uncommon fruitfulness when they are not depressed by slavery.

6. The big lip and flat nose so universal among the negroes, are symptoms of the leprosy. Dr. Rush observes that he has more than once seen them in the Pennsylvania Hospital.

7. Our author candidly confesses that the woolly head of the negroes "cannot be accounted for from climate, diet, state of society, or bilious diseases, for all these circumstances when combined, have not produced it in the natives of Asia and America, who inhabit similar latitudes." There is, however, a fact in the history of leprosy which will probably throw some light upon this part of the subject. "The *trichoma or Plica Polonica* of the Poles is a symptom of leprosy. This is evident, not only from the causes which originally produced it, but from its symptoms. From this fact, it would seem that the leprosy had found its way to the covering of the head, and from the variety of its effects upon the skin, I see no difficulty in admitting that it may as readily have produced wool upon the head of a negro, as matted hair upon the head of the Poles."

But (our author next inquires) how shall we account for the long duration of this colour of the skin through so many generations, and even ages? He answers that leprosy is the most durable in its descent to posterity, and the most indestructible of any disease with which we are acquainted. In Iceland, Dr. Van Troil tells us, it often disappears in the second and third, and re-appears in the fourth generation.—Again, peculiarities of figure have been transmitted for ages in particular districts. Thus many of the inhabitants of the Highlands of Scotland have the same red hair and the same high cheek bones which are ascribed to their ancestors by Tacitus. Even the goitres of the Cretins of the Alps are transmitted through many generations.

If it be objected that the leprosy is an infectious disease, and that no infectious quality exists in the skin of the negro, "I would reply (says the author) that the leprosy has in a great degree ceased to be infectious, more especially from contact; and secondly, that there are instances in which something like an infectious quality has appeared in the skin of a negro. Thus two white females (one in North Carolina and the other in Buck's County, Pennsylvania,) not only acquired a dark colour, but several of the features of a negro, by marrying and living with black husbands."

"It is no objection to the theory I have attempted to establish, that the negroes are as healthy and long lived as the white people. Local diseases of the skin seldom affect the health of the body, or the duration of human life. Doctor Thiery remarks that the itch, and even the leprosy, did not impair longevity in those people who lived near the sea shore in the healthy climate of Galicia."

If we concede to this theory the meed of ingenuity, we shall probably have gone to the full extent that it deserves. In several instances the similarity remarked by the venerable and distinguished author, has been found to fail; and in none more strikingly, we believe, than where he ascribes powerful venereal appetites to lepers. Late investigations, particularly in the island of Madeira, would seem to render this opinion very questionable.* Dr. Rush's conjecture may be placed along side that of Blumenbach's, who ascribes the black colour of negroes to an unnatural state of the biliary secretion, produced by heat, and increased through many generations.—Carbon is thus generated in abundance by the vessels of the skin, and the dark tinge produced; and the remarks of an able anatomist on this are equally applicable to both. "We are particularly surprised that the acuteness and good sense of Blumanbach should have allowed him to resort to an explanation grounded on such remote analogies, and so obviously weak and inadequate, as that by which he attempts to

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* Edinburgh Medical and Surgical Journal, Vol. 26, p. 15.

account for the black colour of the negro. To require us to believe that all the dark coloured races labour under hepatic disease, (or leprosy) when our senses inform us that they are in perfect health, is really too much."*

4. *An Essay on the Vermilion Colour of the Blood, and on the different colours of the Metallic Oxides, with an application of these principles to the Arts.* By SAMUEL F. CONOVER, M. D. Read June 20, 1806. Vol. 6, p. 247.

In this paper Dr. Conover enumerates the remarkable discoveries, by means of which pneumatic chemistry has illustrated this phenomenon. "Priestley, Cigua, Hewson, Thouvenel, and Beccaria, have made many experiments on the blood, and have all united in the opinion that its vermilion colour should be attributed to the absorption of oxygen by the blood, in its passage through the lungs during respiration." Chaptal in his treatise on the blood, after stating that its colour had been attributed to iron, observes that as *oxygen alone* is absorbed during respiration, this colour is owing to iron calcined by the pure air and reduced to the state of red oxide. Here is a recognition that oxygen gas consists of *oxygen and caloric.* But by the experiments of Berthollet, it appears that "oxygen and *light* have great affinity, that light is capable of combining with it, and that it contributes, along with caloric, to change it to a state of gas."

Our author, after quoting the opinions of Fourcroy and Davy on this subject, and endeavouring to show their insufficiency to explain the change in question, brings forward his own theory, "predicated (as he says) on the Newtonian and pneumatic philosophy."

Light is a mixture of seven different coloured rays of different refrangibilities, and derived from the sun—heat is a simple elementary body, and a necessary constituent of this planet—oxygen gas is a compound of *light, heat, and oxy-*

* Rees' Cyclopedia, Art. *Man.*

gen, and oxygen is held in its gaseous state by means of caloric. Again, "It has also been proved beyond the possibility of doubt, by the experiments of the most respectable chemists, that the blood contains *iron*." "Hence, when atmospheric air is taken into the lungs, the oxygen gas is absorbed by the blood in its passage through the lungs during respiration, and from the great affinity of oxygen to the iron in the blood, it unites with that metal, and the *red ray*, a constituent of oxygen gas (the most difficult of refrangibility) is absorbed at the same time by the iron, and becomes fixed, which constitutes the red oxide of iron, and illustrates, in a philosophical manner, the beautiful phenomenon of the vermilion colour of the blood, while the heat is set at liberty, and the other six constituent rays of light, either become fixed in the other parts of the blood, or are carried off in a latent state, by expiration; for it is an established principle in optics, that some rays enter into the combination of bodies, while others are reflected, and this in proportion to the greater or less affinity of the several rays with these bodies."

Dr. Conover imagines that a strange confirmation of his theory is derivable from the experiments of Davy with nitrous oxide gas on the blood of animals. That substance, composed of oxygen 37 parts and nitrogen 63, "exists *perhaps* in the most intimate union which those substances are capable of assuming, for it is unalterable by those bodies which are capable of attracting oxygen from nitrous gas, and nitrous acid at common temperatures." Venous blood exposed to the nitrous oxide, was rendered darker and more purple than the same kind of blood exposed to atmospheric air. Also when blood was drawn from two animals, one who had breathed the nitrous oxide and the other atmospheric air, it assumed different colours, corresponding to the differences mentioned in the last experiment. Dr. Conover's inference from all this is, that the affinity between the constituents of nitrous oxide, is much stronger than that between the constituents of atmospheric air—"that the temperature of the blood, together with the attraction of the iron therein, being insufficient to disengage much oxygen from the nitrous oxide, consequently

less heat is evolved from the partial decomposition of the nitrous oxide, than from atmospheric air in the process of respiration; therefore the iron in the blood is only oxydized in an inferior degree, which accounts for the fixation of the violet coloured ray, (the easiest of refrangibility,) and resolves the phenomenon of the purple colour which the blood assumes, from the effects of the *nitrous oxide.*" Blood altered by the nitrous oxide is capable (says Davy) of being again rendered vermilion by exposure to common air, or oxygen gas.

5. *Two Hearts found in one Partridge.* Vol. II. p. 330.

6. *Account of a Worm in a Horse's Eye.* By F. HOPKINSON, Esq. Read Sept. 26, 1783. Vol. II. p. 183.

7. *Of a living Snake in a living Horse's Eye, and of other unusual productions of Animals.* By JOHN MORGAN, M.D. F.R.S. Professor of the Theory and Practice of Physic, Philadelphia. Read June 5, 1782. Vol. II. p. 383.

The partridge in which the above monstrosity was observed, was opened by Monsieur Vergé, Senior Surgeon of the Artillery at Williamsburgh, (Virginia,) in February, 1782. "The two hearts were attached to one lung by blood vessels."

As to the subsequent communications, they both notice the same animal. A horse, nine years' old, was observed to have a living snake or worm in its left eye. Its serpentine form was perfectly visible, and its length apparently between three and four inches. At this time the eye still retained its transparency; but at a subsequent period, when the horse was brought to Philadelphia and publicly exhibited, there was a high state of inflammation present, the aqueous and vitreous humors were confirmed, and the organ had a white milky appearance, bordering on the colour of a cataract. The horse seemed to suffer greatly, and it was necessary to strike him suddenly, in order to have him open the eye. The motion of this tormentor was then distinctly visible.

Dr. Morgan quotes parallel instances from the Records of Medicine, showing that living animals have insinuated themselves into various parts of the human body. Such as the Guinea worm into the leg, a jointed worm into the liver. (See Medical Essays of a Society of Physicians in London.) Ruysch, who was the most eminent anatomist of his day, observes, that "daily experience proves that worms may be generated in all parts of the body."

8. *The art of making Anatomical Preparations by Corrosion.* By John Morgan, M. D. F. R. S. Professor of the Theory and Practice of Physic in the University of Pennsylvania, and Member of the Royal College of Physicians at Edinburgh. Vol. II. p. 360.

This essay is interesting from the biographical notices contained in it. We shall confine ourselves to these, as the directions for making corroded preparations are now to be found in many of the leading works on dissection.

Dr. Morgan was a well educated and intelligent American, who spent several years abroad for the purpose of perfecting himself in Medical Science. He saw and was intimate with many, whom we now reverence as "our fathers" in learning, and whose fame is a part of the glory of our profession. He studied anatomy with the two Hunters; "was practical dissector to the celebrated Drs. Colignon and Smith, Professors of Anatomy in the Universities of Cambridge and Oxford; and afterwards improved himself by practice at Paris with Mons. Sue." The art of using corrosion in anatomical preparations, he acquired from the Hunters; but it was totally unknown in France till he communicated it, first at Paris, and afterwards in the south of France. He communicated a memoir on the subject, with a preparation of the vessels of the kidneys, to the French Academy of Surgery in 1764; and since that time, Sue, the Professor of Anatomy, made respectful mention of this circumstance in his work, entitled "Anthropotomie." Dr. Morgan however adds, that he took "no notice of my being a Pennsylvanian by birth, or native of America. *The reason may be, that Americans before the Revolution being but little considered in any other light than as colonists, their nation was seldom taken notice of.*"

"But what gave me equal pleasure and surprise, (he adds) was the admiration excited of my presenting only a part of the vascular preparations of a kidney by corrosion, (the rest being broken down in a journey by land of above a thousand miles), which was expressed by the celebrated Morgagni, the illustrious professor of anatomy in the University of Padua. He had kept up a literary correspondence with Ruysch when alive, had been favoured with specimens of this great man's preparations, and declared that in comparison to the preparations I gave him, they were '*rudis indigestaque moles.*' From this small specimen, he said, *ex ungue leonem*, he could readily comprehend that the usefulness of this kind of knowledge amongst the learned in anatomy must become great and extensive."

So far as Dr. Morgan could ascertain, this art cannot be traced farther back than to the learned Dr. Nichols of London, who formerly gave lectures in anatomy both there and at Oxford, and from whom Dr. Hunter acknowledged to his pupils that he received his first information. "He then deserves to be looked upon as the author and inventor of this art."*

SURGERY.

There are but two papers that strictly belong to this division.

1. *Account of a large Wen successfully extirpated.* By John Syng Dorsey, M. D. Read 1817. Vol. I. N. S. p. 298.

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*Although the credit of this invention is not given to Dr. Nichols in the common biographies of him, yet he is not altogether deprived of it. While preparing this article for the press, we opened the July number of the London Quarterly Journal of Science. In a review of the "*Gold-headed Cane,*" written by Dr. Macmichael, the following extract from this work is given. "Frank Nichols, who married a daughter of Dr. Mead's, was the inventor of corroded anatomical preparations. He was at one time Professor of Anatomy at Oxford, and author of a treatise *de Anima Medica.*" p. 283.

As the history of this case is very generally known among the profession, we shall be very brief in our abstract of it.

The patient, a negro woman aged 45 years, had noticed it about eighteen years previous: it had grown gradually, and never been painful. It arose from the upper part of the back, extending equally on both sides, and with a very large base. Its circumference at the neck, or narrowest part, was 2 feet 10 inches; at the thickest, vertically, 3 feet 9 inches; and horizontally, 3 feet 1½ inch. *The narrowest part of the tumour was thicker than the patient's body.* Its surface was tolerably regular, but very large and numerous veins were seen in various parts of it.

The operation was performed at the Pennsylvania Hospital on the 22d February, 1815. Having previously administered an opiate, she was placed (at the suggestion of Dr. Physick) on her face upon the table, fifteen minutes before an incision was made, and assistants were directed to elevate the tumour in such a manner as to empty it as completely as possible of its blood. This expedient had a remarkable effect on the superficial veins. Many of them contracted and could not be perceived.

After making the external incisions in such a manner as to preserve skin enough to cover the surface left by the removal of the tumour, and the skin being dissected and turned back, the tumour was rapidly removed from its base. It adhered to some of the spinous processes of the vetebræ, and to the muscles and tendons near the spine. The loss of blood was very trifling, and the wound united kindly by the first intention. The patient was discharged cured on the 15th of April.

The tumour (called steatomatous by Dr. Dorsey) weighed 25 pounds, but when filled with blood was probably much heavier.

Dr. Dorsey in his comments on this case, insists very justly on the influence of position on the circulation of the blood. He observes that he once attended an operation on a comparatively small tumour, seated on the back, the extirpation of which was found impracticable, in consequence of bleeding

from the superficial veins. The application of this precept to hemorrhage from blood-vessels in the extremities, and to certain local inflammations, is very manifest. A bleeding from an aneurismal arm was arrested by keeping the hand in a vertical position. Dr. Physick, according to our author, originated the practice which he found so beneficial in the present case.

2. *An Essay on a new method of treating the effusion which collects under the Skull after Fractures of the Head.* By J. Deveze, Officer of Health of the First Class in the French Armies.—Read May 6, 1796. Vol. IV. p. 433.

When there is a collection of blood from a blow or fracture of the skull, all authors advise the trepan, in order to discharge the collected fluid, but the difficulty of ascertaining the part where it has accumulated, often makes frequent repetitions of the operation necessary before it is discovered.—Thus (says Mr. Deveze) Mareschal, first surgeon to Louis XIV. trepanned a young lady twelve times before he found the effusion occasioned by a fracture of the parietal and temporal bones on the same side.

To prevent these repeated operations, our author suggests the separation of the dura mater from the cranium in the direction of the fracture. The fluid will be pressed towards the opening, and may thus be evacuated. The danger which might be apprehended from this is found by experience not so formidable. Blood cannot collect between these parts without their separation, and yet they return to their natural state when the fluid is evacuated by the trepan, even after the parts have been long disunited. Thus in a case where a deep-seated and violent pain succeeded an attack of scarlet fever, and it resisted the use of all the usual remedies, Mr. Deveze prescribed the trepan. The operation was performed in the centre of the painful part, and an opening was thus given to the exit of a quantity of pus. The pain was removed, and the patient cured. Here was a long separation of the dura mater from the skull.

In effusion occasioned by violent blows, the separation is sudden, violent, and often extensive, yet if properly managed, the patient will often recover. An individual was brought to the French Hospital at Philadelphia, in March, 1795, with a fractured skull. He was comatose, and his face inflated and discoloured with ecchymosis. He had been trepanned on the spot before bringing him to the Hospital; and Mr. Deveze, on examination, found that the instrument had been applied on the right parietal bone, about an inch from the coronal suture. Other fractures were present, but no depression. The comatose drowsiness, with involuntary discharge of urine, and inability to swallow, continued for twenty-four hours. It occurred at this time to Mr. Deveze, that the leading symptom was owing to blood collected under one of the points of the fracture in the temporal region, as the effusions which had been formed under the other fractures had been evacuated in removing the dressings, he determined to adopt the method now recommended, of separating the adhesion between the skull and the dura mater in the direction of the fracture. He took a very flexible silver spatula, and pressing it towards the bone, bent it to take the form of the part upon which he acted. At length after having entered half an inch below the temporal scaly suture, the resistance suddenly ceased, and the instrument entered a hollow part; at the same time the blood flowed in great quantity. The patient now began to move strongly, endeavoured to rise, and talked without knowing what he said. From this time he gradually recovered, blood came away from the dressing on the next day, and on the fourth after the accident he had perfectly recovered his senses. The wounds suppurated and healed kindly, until the 28th of December, when he left the Hospital.

MATERIA MEDICA.

1. *An Analysis of the Chalybeate Waters of Bristol, in Pennsylvania.* In two Letters from Dr. JOHN DE NORMANDIE, of Bristol, addressed to Dr. Thomas Bond, one of the Vice-Presidents of the Society. Dated Sept. 10, 1768. Vol. I. p. 368.

Another analysis of these waters was subsequently published in Barton's Medical and Physical Journal.

2. *An Account of the late Dr. Hugh Martin's Cancer Powder, with brief Observations on Cancers.* By BENJAMIN RUSH, M.D. Read Feb. 3, 1786. Vol. II. p. 212.

A few years previous to the date of this paper, Dr. Hugh Martin, a surgeon of one of the Pennsylvania regiments stationed at Fort Pitt, came to Philadelphia and advertised to cure cancers with a medicine which he said he had discovered in the woods, near the garrison. As Dr. M. had been a pupil of Dr. Rush, the latter endeavoured to obtain some information from him concerning the remedy. It appeared to be the powder of some well dried root. Dr. Rush also saw it applied several times. This was done either by placing the powder on the parts affected, or by touching them with a feather dipped in a liquid, which appeared to be this root dissolved in water. "In several cancerous ulcers of the superficial kind, the cures he performed were complete. When the cancers were much connected with the lymphatic system, or accompanied with a scrophulous habit of body, his medicine always failed, and in some instances did evident mischief."

Dr. Rush, with a desire to ascertain what acrid vegetable possessed the above qualities, used several of the principal ones, (the arum, stramonium, phytolacca, &c.) but without success. He was led to doubt whether the powder was a *simple* root; but the doctor on all occasions continued to assure him that it was wholly a vegetable production.

In 1784 the doctor died, and in a few weeks Dr. Rush obtained from one of his administrators a parcel of the powder in question. On examining it closely, a number of white particles were found scattered through it. Suspecting that these might be arsenic, he threw some grains on heated coals, when the garlic smell was freely emitted. Placed between two plates of copper, and heated red hot, they gave a silverish hue to one of the plates. He then used a third test, "which had been lately communicated to the world by Mr. Beyman, and

which is supposed to be in *all cases* infallible. A small quantity was infused for a few hours in a solution of a vegetable alkali, and then a solution of blue vitriol was poured upon it. The colour of the vitriol was immediately changed to a beautiful green, and afterwards precipitated."*

The proportion of the arsenic appeared to be about one-fortieth of the whole compound; and it is deemed probable, by Dr. Rush, that various vegetable compounds were employed at different times. In the powder examined by him, he conjectured that the solarium lethale, or deadly nightshade, was used. The effect can only have been to blunt the activity of the arsenic. The liquid used by Dr. Martin was doubtless a solution of that substance in water.

Dr. Rush concludes by remarking that the use of arsenic in cancers and foul ulcers is of ancient standing. "It is the basis of Plunkett's and probably of Guy's well known cancer powders." The violence of its action, however, renders its use occasionally dangerous, but in his opinion the composition of Dr. Martin tends to prevent this ill consequence.

3. *Medical History of the Cortex Ruber, or Red Bark.* Communicated to JOHN MORGAN, M. D. F.R.S. Professor, &c. Read Feb. 20, 1784. Vol. II. p. 289.

This communication consists of letters from Dr. Duché at London, and Dr. Davidson of the island of St. Lucia. The former mentions that Dr. Saunders, in lecturing at Guy's Hospital, spoke of a new species of bark, which he had introduced into the practice of physic with great success. A cold infusion was found more effectual in removing fever, than a chemical extract from the same quantity of the other kind. It contains a much larger portion of resin, and has a much stronger aromatic taste than the common bark.

Dr. Davidson mentions that this bark was introduced into practice at the island of St. Lucia (of which the tree is a na-

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* This of course is the test commonly known under the name of *Scheele's Green.*

tive) in 1779, by Dr. Young, physician to the British troops. Its freshness, the little attention bestowed in drying it, and the large doses in which it was exhibited, produced alarming fits of vomiting and purging, and deterred them from continuing its use, until they recently met with Dr. Saunders' work on the Red Bark. Having carefully dried it, and given it in the cold infusion with greater caution, and in less doses, it was found highly beneficial, particularly in tertians, and in *a remarkable species of dysentery conjoined with an intermittent fever.* The purgative effects which it still preserved, enabled them to use it earlier in the treatment of those diseases.

Dr. Morgan, (to whom specimens had been sent by both his correspondents) states that he found it most efficacious in the cure of obstinate remittent and bilious fevers.*

4. ***A Botanical Description of the Podophyllum Diphyllum of Linnæus.*** In a Letter to Charles Peter Thunberg, M.D. Knight of the Order of Wasa, Professor of Medicine and Botany in the University of Upsal, &c. By Benjamin Smith Barton, M.D. Read May 18, 1792. Vol. III. p. 334.

The object of this communication is to show that the P. diphyllum is a plant distinct from the P. peltatum, not only in its specific but its generic characters. Having established this, Dr. Barton proceeds to describe and name it "*Jeffersonia binata.*" This alteration has been received by succeeding botanists (of whom it is sufficient to mention the names of Pursh, Nuttal, and Torrey) as correct.

In the appendix to the papers are some remarks on the medicinal qualities of the *Podophyllum peltatum*, or May Apple. It is much esteemed by the several tribes of Indians. Its root is used as a purgative, emetic, and anthelmintic. Dr. Barton promises hereafter to publish an account of his expe-

* Dr. Davidson calls this species of Cinchona *C. Caribæa Sanctæ Luciæ.* He however expressly mentions that it is different from the *C. Caribæa* of Dr. Wright, described in the "Medical Commentaries." The present is undoubtedly the C. *Oblongifolia* of the Dispensatories.

riments with it. Meanwhile he remarks, that it *generally proves purgative*, though he has known it, in several cases, to operate as an emetic. The common doze for an adult is from 18 to 20 grains of the dried root, in powder. Its advantages as a purgative over jalap or rhubarb are, that it can be used free of adulteration—that it operates in a smaller doze—that it does not so frequently prove emetic as jalap, nor gripe so much as rhubarb—and lastly, it is not so nauseous as either. Dr. Barton adds, that he thinks it possessed of a narcotic quality.

Although unacquainted with any medicinal properties in the Jeffersonia, he conjectures that they are similar to those of the P. peltatum.

5. *An Inquiry into the comparative Effects of the Opium Officinarum, extracted from the Papaver Somniferum, or White Poppy of Linnæus, and of that procured from the Lactuca Sativa, or cultivated Lettuce of the same author.* By John Redman Coxe, M. D. an Honorary Member of the Philadelphia Medical Society, and a Senior Member of the Chemical Society of Philadelphia, Read November 24, 1797. Vol. IV. p. 387.

The sedative powers of the Lactuca sativa (says Dr. Paris) were known in the earliest times. No one, however, according to our author, has extracted from it a substance possessing all the properties of opium in the highest degree.—"Some have arrived at the very threshold of this discovery, but have stopped from the pursuit." Thus Jones in 1701, Alston in the Edinburgh Medical Essays, Hill in his British Herbal, and Dale in his Pharmacologia, all speak of the juice of the lettuce as resembling opium, and possessing anodyne qualities.

Dr. Coxe proceeds to relate the result of the application of sundry chemical tests to the two kinds of opium. Acetate of lead, sulphate of iron, lime waters, nitrate of copper, &c. all produced nearly identical effects on both. Comparative experiments were next instituted on animals, with the aqueous solutions and spirituous tinctures of each. Whether injected into the cellular substance or the stomach—whether excitement or

death was intended to be produced, the train of symptoms was very nearly the same with equal quantities. Dr. Cooper exhibited some of the lettuce opium to individuals in the Pennsylvania Hospital, with results similar to those induced by the officinal.

Dr. Coxe concludes his Essay (which we have greatly abridged) by giving some directions for collecting the juice of the lettuce. He prefers circular incisions, and they should be made when the plants are beginning to seed. It should then be suffered to dry on the stalk, after which it is scraped off, collected, and inspissated by the gentle heat of a sand-bath.

The extensive cultivation of the lettuce is recommended by our author for the purpose of providing ourselves at home with its valuable product.

TOXICOLOGY.

Four papers belong to this division.

4. *An Account of the Effects of Stramonium, or Thorn Apple.* By Benjamin Rush, M. D. Professor of Chemistry in the College of Philadelphia. Vol. I. p. 384.

Dr. Rush was called to a child between three and four years old, who was labouring under violent fever, delirium, tremors in her limbs, and a general eruption on the skin, accompanied with a considerable swelling, itching, and inflammation. Although unable to account for such acute symptoms at the particular season of year, he still prescribed depleting remedies, but with little effect. The mother at last recollected that the stramonium (which grew in the garden) had formerly disordered the child in a similar manner, though in a much slighter degree. Dr. Rush now exhibited a solution of tartar emetic, which produced nothing but a free vomiting of phlegm, and succeeded it by doses of castor oil, which in a short time brought away a great number of stramonium seeds.

The delirium gradually abated, but the tremors in her hands continued at times, and she was stupid and blind.—The pupils were much dilated, and she catched at the bed clothes like a person in the low stages of fever. Believing that some of the seeds still remained in the stomach, he again exhibited an emetic, which brought away eighty of them. The stupor and blindness however continued, when another vomit brought up twenty more. Upon this all her complaints vanished, and in a few days she appeared perfectly well.

In explanation of the remarkable fact that this poison remained nearly a week in the stomach without more dangerous effects, Dr. Rush observes that the seeds were of the last year's growth, and were become so dry and hard as to resemble little pieces of horn.

It is mentioned that Drs. Bond and Harris used lemon-juice in a similar case, where the strongest emetics proved ineffectual in discharging the poison. Dr. Rush considers it an antidote to this substance. He also adds, that the *Anthelmia*, or *Worm Grass* of Jamaica, and the *Carolina Pink Root*, are both considerably narcotic, and when taken in too large quantities, produce effects somewhat similar to those of the stramonium.

2. *An Account of a Poisonous Plant growing spontaneously in the Southern part of Virginia.* Extracted from a Paper by Dr. James Greenway, of Dinwiddie County, in Virginia. Read Feb. 19, 1790. Vol. III. p.234.

This is probably the earliest account on record of the poisonous effect of the *Cicuta maculata*, a plant that is annually destroying many lives in various parts of our country. Dr. Greenway calls it *Cicuta venenosa*, and mentions among its trivial names, wild carrot, wild parsnep, fever root, and mock eel root. "It does not resemble a carrot or parsnep in the stalks, leaves, or flowers, though the root has some resemblance to a parsnep in colour and smell, and the seeds have also a great likeness. It resembles the Angelica, and the

mischief that has been done by it, has proceeded from mistaking one for the other."

In May 1789, three negro boys, while searching the woods for wild angelica or eel root, dug up the roots of the cicuta, and one of them supposing it to be the substance wanted, eat some of it. His companions, who meanwhile had left him, found him at their return speechless and senseless, but without any spasm; his limbs were perfectly flexible, and he appeared to be in a deep sleep, deprived of all motion except that of respiration. Some simple remedies were given, and he recovered his senses in a day or two, but a degree of stupidity and dulness remained for a length of time. Had not the quantity eaten been very small, the consequences would undoubtedly have been fatal.

3. *An account of the most effectual means of preventing the deleterious consequences of the bite of the Crotalus Horridus, or Rattlesnake.* By Benjamin Smith Barton, M. D. Read August 19, 1791. Vol. III. p. 100.

In an excursion through the western settlements of Pennsylvania, in 1785, Dr. Barton endeavoured to acquire every possible information respecting the effects of the poison of the rattlesnake, and the methods of prevention or cure that are commonly employed. Many vegetables were shown him, as *good for the bites of snakes.* The diversity of these would lead one to believe, either that the poison was not so dangerous and fatal, as has been generally imagined, or that the accuracy of his informers was questionable. Allowing the latter to its proper extent, Dr. Barton further adds, that in the season of languor and torpidity, the rattlesnake bites with seeming reluctance, and without any, or with but little ill consequence arising from the wound. Even during the time when the animal is best qualified to strike and injure, individuals are often found, the cavities of whose venemous fangs are entirely, or nearly, destitute of their active power. It appears to be secreted slowly, and the author mentions an experiment made by his father, which would seem to illustrate this very strikingly. A chicken bitten by a rattlesnake

died in a few hours. On the next day, another chicken bitten in the same manner, survived the injury much longer than the first. The third day, another chicken bitten as before, swelled much, but recovered. On the fourth day, several chickens were suffered to be bitten, without receiving any injury. Lastly, the place where a person is bitten, causes great diversity as to the symptoms. An injury to a ligamentons or tendinous part, is not by any means so dangerous as one to a vein or artery.

All the circumstances, in the opinion of Dr. Barton, enable us to explain why some have experienced little inconvenience from the bites of the rattlesnake, and how so many vegetables have acquired reputation as antidotes.

The rude and simple practice of the western settlers, for preventing and curing the bite is as follows. A tight ligature is immediately thrown above the part, if practicable, where the poison has been introduced. The wound is next scarified, and a mixture of salt and gunpowder, or sometimes either, is laid upon the part. Over the whole is applied a piece of the bark of the white walnut (juglans alba). At the same time, some of the vegetables hereafter enumerated are given internally, either in the form of decoction or infusion, along with large quantities of milk.

Among these remedies, our author places the greatest reliance on the ligature, scarification, and the local stimulant applications. The white walnut acts as a blister, though not powerfully; and he supposes that all remedies of that nature must prove serviceable. He has heard of one instance, where a blister of cantharides was applied with the best effect; and Linnæus, (in his Flora Suecisa) mentions the application of the bark of the Daphne mezereon, a very acrid substance, to a wound made by a snake with perfect success.

Internal remedies, he supposes, may be of some use, by exciting a most profuse perspiration. Some of them act powerfully as diuretics, and in this way may also be of service. "The Indians in the State of Jersey, I have been informed, formerly made use of the expressed juice of the leaves of the common garden rue, (ruta graveolens) for the bite of the

rattle snake." It was given in large doses, (two table spoonsful of the juice every two hours) until a violent perspiration was induced. The use of the ligature meanwhile was not omitted.

When this poison is thrown into a vein or artery, the effect is more sudden, and the powers of medicine are much less considerable. Catesby observes, that "when a rattlesnake penetrates with his deadly fangs, and pinches a vein or artery, inevitable death ensues; and that, as I have often seen, in less than two minutes. The Indians know their destiny the minute they are bit; and when they perceive it mortal, apply no remedy, concluding all efforts in vain." We should not, however, in such cases, omit the use of the ligature; and perhaps the rue, or some other powerful sudorific, may also be of use. *Sucking the wounded part* is very generally practised by the Creeks, and some other native tribes in the southern states.

When the poison has been actually introduced into the general mass of the blood, alarming and characteristic effects soon appear. Nausea, and even vomiting are early symptoms, and this, indeed, in most cases of bites, whether of blood vessels, or of muscular parts. The pulse becomes full, strong, and greatly agitated. The whole body begins to swell; the eyes become so entirely suffused, that it is difficult to discover the smallest portion of the adnata that is not painted with blood. In some cases, there is hæmorrhage from the eyes, nose, and ears, and large quantities of blood have even been known to be thrown out on the surface of the body, in the form of sweats. During all this, the patient suffers much pain. In this melancholy state but little can be done. Dr. Barton, however, advises the use of the lancet, in those instances where a violent action of the arterial system is present without hæmorrhage.

In concluding his Essay, Dr. Barton discountenances the idea of *absolute specifics*, and places most reliance on the general remedies which have been enumerated. A long list of vegetables is given, which have been recommended as remedies, "either by Indians, or by the white inhabitants of our continent." Of these, we shall only enumerate a few.

Sanguinaria canadensis,* Hypoxis erecta,† Laurus sassafras,* Polygala senega,*† Prenanthes alba,† Hieracium venosum,† Aristolochia serpentaria,† Veratrum luteum? Liriodendron tulipifera.† The inner bark of this last, (the tulip tree) after being bruised and infused in water, is given by the Cherokees, to horses which have been bitten by the rattlesnake. Actæa racemosa,† Sanicula canadensis,† &c.‡

4. *Some account of the poisonous and injurious effects of the Honey of North America.* By Benjamin Smith Barton, M.D. Read July 18, 1794. Vol. V. p. 51.

Dr. Barton was induced to examine the subject from having observed in the year 1785, some of the disagreeable effects of American wild honey on persons who had eaten it, in the western parts of Pennsylvania, near the river Ohio.

The symptoms produced are as follows. At first, delirium, which is sometimes mild and pleasant, and sometimes ferocious; ebriety, pain in the stomach and intestines, convulsions, profuse perspiration, foaming at the mouth, vomiting and purging, and, in a very few instances, death. Occasionally vomiting is the earliest symptom, and in such cases, the subsequent effects are much milder. A temporary paralysis of the limbs is sometimes noticed.

Spontaneous vomiting and purging seem to be the common mode of relieving the system from the deleterious effects of the honey.

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* Used externally. † Used internally.

‡ Mr. Audubon, the celebrated ornithologist, who has resided for several years in the southern states, and has long studied the habits of animals, says, in a recent communication on the rattlesnake,—"The quantity of venom infused is more or less, as the animal may have been more or less irritated. If made to bite themselves, their own flesh affords no antidote, for they die in excruciating torments." He adds, that "among the native Americans, cutting out the wounded part, and searing, or, as it is termed in the country, scaring it with fire, is considered the most effectual; but even this requires great promptitude to afford a chance of safety." *Jameson's Edinburgh New Philosophical Journal, No.* 5.

The districts in which the greatest injury seems to have occurred from it, are South Carolina, Georgia, and the two Floridas. Dr. Barton has strong doubts whether the poisonous differs from the edible honey, either in colour, taste, odour, or consistence, although such seems to be the prevailing opinion. The former is alleged to be of a darker colour and thicker consistence.

Our author is of opinion that its qualities are derived from the flowers of certain plants which abound in the countries just named. He particularly enumerates the following:

1. *Kalmia angustifolia* (dwarf laurel, ivy, lamb-kill).—A striking illustration is given. A party of young men removed a few hives of bees to a district in New-Jersey, where this plant abounded. The bees increased rapidly, but their honey intoxicated all who used it. Unwilling to lose the fruits of their labour, they made it into metheglin; this, however, produced similar effects.

2. *Kalmia latifolia*, (laurel.)—The leaves of this plant are poisonous to sheep, horned cattle, and horses. "Many of General Braddock's horses were destroyed by eating the leaves and twigs of this shrub, in June, 1755, a few days before his defeat." It is also the plant eaten by pheasants in the winter, and which renders them poisonous.

3. *Kalmia hirsuta*, a native of South Carolina, Georgia, and Florida, and in the two last supposed to be the principal vegetable from which the deleterious honey in those parts is produced.

4. *Andromeda mariana*, (broad-leaved moor-wort.)—Its leaves are poisonous to sheep. Honey from its flowers has frequently their smell. It is a very common plant.

To these Dr. Barton adds others, from which, he thinks, a noxious honey may be gathered, as the *Rhododendron maximum*, or Pennsylvania mountain laurel; *Azalæa nudiflora* (wild honey-suckle); and *Datura Stramonium*.

Several of the Greek and Roman writers relate instances of the deleterious properties of the honey of certain countries. These are succinctly quoted by Dr. Barton.

As the present article has exceeded its intended limits, we shall conclude our analysis in some future number. The subjects that remain to be noticed are important and interesting.

[*To be continued.*]

ART. II. *Report of the Medical Society of the City of New-York on Nostrums, or secret Medicines.* Part I. Published by order of the Society, under the direction of the Committee on Quack Medicines. New-York, 1827. 8vo.

IT has long been a matter of just astonishment and regret, with the better informed classes of the community, in this State, that its enlightened legislature, anxious as it has always proved itself to promote the interests of science and literature, should not only have neglected to suppress quackery altogether, but should have even held out inducements to the artful and illiterate to practise successfully upon public credulity, and trifle with the health and lives of their fellow-citizens. It is, in fact, a singular and unaccountable solecism in the legislation of an enlightened and free people, that while the interests of all other professions are acknowledged and protected, those of medicine alone should have been so much neglected. It would seem as if they were not considered of any importance to the public weal, instead of being, as they truly are, blended, if not identified with it.

On what other supposition can we explain the provision of the act intended to *regulate* the practice of physic and surgery in this State, which grants an immunity to any vile pretender to medicine, or illiterate nostrum vender, provided the means with which he practises his imposture are the growth of this country! What lamentable ignorance does this provision not display? what reflection does it not cast upon the mental obliquity of those who could originate, and the

culpable indifference of those who could tamely submit to the enactment of such a law? Had this law been enacted in the dark ages, it might have excited less surprise; but that, in the nineteenth century, when the sciences are cultivated with a zeal that is almost universal, so gross an ignorance of the elements of one of them most intimately connected with domestic comfort and the preservation of life, should be displayed in the representative hall of a great and flourishing State, is indeed a phenomenon not easy to be explained.—Resting on the assumption, that articles of the Materia Medica which are indigenous to our own soil, can do no harm if they do no good, it places in imminent peril the lives of its inhabitants, and gives a legal sanction to mercenary empiricism of the most dangerous sort. It surely required only a a moment's conversation with a well-informed naturalist—we will not say a physician, as in his case interest would have been suspected, by the originators of such a law, to have biassed his opinion—to have made them acquainted with the notorious fact, that some of the most powerful poisons in the toxicological table are the growth of these very United States, supposed to be so harmless in their productions; and that some of these poisons have, in the hands of ignorant medicasters, long since and often proved the most deadly foes to human life. For the honour of our State, and for the credit of our profession, we sincerely hope the time is not far distant, when this odious feature will be obliterated from our code of laws.

The foregoing remarks are fully warranted, we conceive, by the incalculable extent of the evil alluded to; and it is therefore with considerable gratification we obey the call of justice, which demands it at our hands, to concede a large share of gratitude and praise to the same Legislature, for the incorporation of Medical Societies throughout every county in the State.

Among the many benefits which have resulted from the establishment of these institutions, (and we are glad to avail ourselves of this occasion to remark that they were

both intended to be, and have been, of a *practical* and not a *speculative* nature,) there has been no one so strongly felt as the silent but effectual defeat of legalized quackery and irregular practitioners. We do not assert that these do not exist. Too many of them still abound, as many a Galen's head, and portable vapour bath, too truly evinces to every passer by in our streets. But instead of abounding, as they did in the days of the historian Smith, "like locusts in the land of Egypt," they are now like (*fallen*) angels, "few, and far between." The line of distinction is broadly drawn, and every quack and every quackish doctor, has a price set upon his head and a mark upon his forehead. *They are known.*

It is in the laudable pursuit of the great object of suppressing quackery, that the investigations which form the subjects of the reports now before us were undertaken; and although the articles considered in them are not of the class to which we have referred in our introductory remarks to this article—they are parts of one great whole, and owe much of their encouragement and countenance in this State, to the existence of the law granting immunities to quacks. To enlighten the public mind on this important subject, to unravel the mystery and dissolve the charm which invest secret remedies, by exposing their ingredients, and their powers of *doing* harm, is therefore an imperative duty, and one from the performance of which we hope the society will not shrink through a timid or time-serving policy. It is a duty the more strictly enjoined by the interesting consideration, that its faithful and able discharge will be the most effectual means of removing the veil which has hitherto dimmed the mental vision of our legislators, and the surest earnest that medical men are the only proper repositories of medical power—the only sure judges of medical qualifications.

CHAMBERS' MEDICINE.

The first nostrum which the Committee appointed by the Medical Society of the city and county of New York, have

taken under consideration, is "Chambers' Medicine." In their choice of this article we consider they have been fortunate, and in the discussion of its merits they have displayed learning and ability which will deserve the respect and thanks of the profession, and the community. Intemperance is a crying evil of our land, and whatever promises to remove it, deserves consideration and respect. This consideration and this respect should not, however, be blindly and rashly thrown away. As it would be the height of error to reject an article because it was first introduced to notice by a quack, so on the other hand would it be the extreme of folly and weakness to yield credence, much less give authority to such an article, before its virtues were investigated, and its power of injury, as well as its beneficial tendency, properly understood. This seems to us the judicious medium, and upon this have the Committee proceeded. At the same time there is a duty which physicians owe to their profession—there is a responsibility into which they entered most solemnly when they commenced the practice of their profession, which no love of popularity, no visionary views of general good, should ever induce them to overlook, forget, or sacrifice.

"As physicians, we are bound by solemn obligations of duty to the public, as well as to our own reputation, to reprobate, and, if need be, to expose every attempt to impose upon the credulity of the prejudiced or the ignorant, in matters relative to our profession; none of us, therefore, can make such a compromise with those engagements which we voluntarily assumed, when first authorized to practise physic, as to permit us to hold any terms with nostrums or nostrum venders, for one of *two* things—all secret remedies *are* either devices of cunning to serve personal interest, or they *are not*; if they *are*, the apology of the profession for opposing their circulation is complete on every sound principle of common sense; if they *are not*, and their authors have claims to intelligence as physicians, it is certain that these are made of necessity at the expense of moral obligation on their part, and can have no right to our confidence, on any principle of common honesty. But as it occasionally happens that secret remedies possess some active virtues, which chance or accident may have at first developed, it may become as much the interest of the public, as the duty of physicians, to examine scrupulously into their composition, in order that their merits may be fully tested, and that the profession may avail itself of them, under circumstances favourable to their particular application; for even such

medicines as nostrums are calculated to do infinitely more harm than good, from the general terms in which they are recommended, and the want of skill in those who are charged with their administration; as there is no truth of more universal application, than that any medicine which is beneficially operative, when properly exhibited, must be in the same ratio, injurious, if improperly used.

"In order to form a correct estimate of the virtues of any one remedy proposed for the cure of a disease, it is necessary to settle the character of that disease, and ascertain whether or not, the simple form in which it appears, admits the possibility of its cure by a single medicine, be that what it may, upon sound pathological principles; for that there are such principles, no man at this day will venture to deny. If a disease be attended in its course, by various and diametrically opposite conditions of the system, requiring remedies of opposite characters—if, as is frequently the fact, the name of a disease, apart from its attending semeiology, is the most blind indication of cure that a physician can follow—if contra indication is productive of more, and more frequent embarrassment to the medical attendant, than any other condition of the patient which can present itself —what is the probability, a priori, that any one remedy will suffice for the cure of *any* disease? If it be objected that the remedy is compound, it only removes the difficulty one step further; it cannot produce two opposite results at once: and in this single remark, trite as it is, will be found an entire justification of the abandonment of all quack medicines proposed for the cure of diseases by name. With these remarks, we proceed to examine Chambers' Remedy for Intemperance."—pp. 4, 5.

We next proceed to the analysis of the medicine, for which the committee inform us they are indebted to Mr. Chilton, chemist of this city.

"Having procured a parcel of the remedy from Mr. Chambers, which weighed 225 grains, it was divided into portions of 25 grains each, for the purpose of making separate trials, previous to a more complete investigation. The powder contained in the parcel, the general colour of which is grey, is evidently a mixture of differently coloured particles, by no means uniform in their size. The first step in the examination, was to pass it through a sieve of bolting cloth, in order to separate the coarse part from the fine. In the coarse part left upon the sieve, could be easily distinguished parts of cochineal grains, masses of black matter like lampblack, with red and brown parts of skins or pods, having the pungent taste of pepper, and affecting the nostrils like Cayenne. The fine part which had passed the sieve, was boiled with one ounce of water, in a Florence flask, and filtered; the solution, which resembled an infusion of cochineal, passed with difficulty through the filtering paper: the residuum, after washing with

another ounce of water, and dried, was a powder consisting of black and yellow particles, *sulphur in powder mixed with carbon.* The solution which exhaled the odour of tea, had very slightly the odour of sulphur also. Various re-agents, such as vegetable infusions and tinctures, metallic salts &c. threw down precipitates from this solution. Muriate of barytes, nitrate of silver and oxalate of ammonia had comparatively little effect, from which we may infer, that neither sulphates, muriates, nor lime, in notable quantities, were present. Among the effects produced by re-agents on the solution, the precipitates afforded by acetate of lead and hydro-sulphuret of ammonia were the most interesting, as they correspond with the presence of *tartar emetic.* The precipitate thrown down by acetate of lead, was dissolved by dilute nitric acid. The precipitate by hydro-sulphuret of ammonia, was orange red, which might arise from arsenic as well as from antimony. The following experiment was made to determine this point. To a fresh portion of the solution, carbonate of potass was added, and then sulphate of copper; the carbonate of copper precipitated was intensely *blue:* had the orange precipitate owed its colour to arsenic, the precipitate would have been green. As a further confirmation, a few drops of a watery solution of white oxide of arsenic were added, which converted the precipitate, with its supernatant fluid to a lively grass green.

"As these experiments seemed to demonstrate the presence of tartrate of potass and antimony, the next step in the examination was, to obtain it in an insulated state. For this purpose, fifty grains of the remedial powder were boiled in two ounces of water; the filtered solution was evaporated to dryness; on re-dissolving the dry mass, a portion of it was left; by slowly evaporating the second solution, a crystalline mass was deposited, mixed with colouring matter. By repeating the crystallizations, which were much impeded by the presence of gummy matter, perfectly well formed tetrahedral and octahedral crystals of emetic tartar were obtained. These crystals weighed six grains; but as they were obtained by frequent crystallizations, they were probably not more than one half of the tartar emetic contained in the fifty grains. If we allow this supposition to be correct, the whole parcel of remedy, weighing 225 grains, must have contained a dram of this very active ingredient. The residuum from the 50 grains of the last experiment, which weighed 13 grains, was digested in alcohol, sp. gr. .825, which took up $2\frac{3}{4}$, and left $10\frac{1}{4}$ grains. This alcoholic solution left by evaporation, a red resinous extract, extremely pungent and hot: by adding water to this alcohol solution, a milkiness was produced by the precipitation of the resin. The $10\frac{1}{4}$ grains which the alcohol refused to take up, in the last experiment, were treated with muriatic acid, which dissolved out six grains and left $4\frac{1}{4}$ grains; by adding potass to this solution, a purple powder fell down which weighed two grains. The $4\frac{1}{4}$ grains left by the muriatic acid in the last experiment, were exposed in a crucible to a red heat; sulphur burned off with its characteristic blue flame and suffocating odour, and three-fourths of a grain of silex was left.

"It is evident from these experiments, that the constituents of Chambers' remedy are the following, viz. Emetic tartar—capsicum—sulphur—carbon—cochineal and gum. The silex probably belongs to the pod of the capsicum. The gummy ingredient is probably gum arabic, and was somewhat embarrassing, as it impeded the passage of the solutions through the filter, and affected the crystallizations. The sulphur is seen floating on the surfaces of the solutions, and appears as a yellow powder in the residuums, mixed with carbonaceous matter.

"On a second trial with another parcel of the medicine, fifty-four grains of tartar emetic, in its crystallized form, was procured, and the mother waters still held considerable in solution, which on account of the gum entering into its composition, could not be conveniently separated."—pp. 7, 8.

Having devoted so much space to the preliminary remarks and the analysis of this report, we have little room left for the reflections suggested by the Committee in relation to this and other remedies recommended for the cure of intemperence. We cannot, however, withhold the expression of our approbation at the stand they have taken, under the sanction of the Medical Society, against all nostrums whatever as such. Their objections to the indiscriminate use of the article under consideration by uninformed persons, we consider warranted both by theory and experience. Its inefficacy in a large majority of confirmed cases, will scarcely be disputed after the enthusiasm excited by the delusive hopes encouraged by its deceased author shall have abated of its force by time and experience. Its ruinous tendency and its immediately fatal effects are also becoming matter of notoriety. The following is the conclusion of the report, and reflects credit on the professional independence and enlightened morality of its author, who, as we understand, is Dr. James R. Manley.

"Your Committee remark, that although the opportunities for acquiring information on the subject of this medicine were ample, and they took great interest in the results to which their inquiries might lead, they have found no reason to exempt it from the general censure to which all quack prescriptions are justly liable. Its effects, so far forth as they have been able to ascertain them, are just such as might have been anticipated from its composition, as shown by the analysis, and such as have followed the exhibition of analogous remedies, from the time that expedients of this kind were first adopted for the treatment of the destructive habit for which it is now proposed; with this difference, however, that in the hands of skil-

ful physicians, who possessed a thorough knowledge of the medicine they administered, whilst the same measure of benefit was derived, little or no harm was occasioned by its use; they have no hesitancy, therefore, in recording their conviction, that as a nostrum, (though it may be productive of much advantage in certain cases,) the general terms in which it is recommended, the general directions with which it is accompanied, and the indiscriminate manner in which it is liable to be used, far more than countervail its benefits.

"That certificates in its favour should be numerous, is very natural; and indeed, if they were not, this fact would stamp it with the mark of reprobation, as it is highly probable that more intemperate persons have been the subjects of its operation within six months, in the city of New-York, simply in consequence of its being a *nostrum*, or secret remedy, than would have become the patients of physicians, for the cure of the same habit, in the space of half a century.

"Your Committee in closing this report, have only to observe that it has been drawn up under a distinct recognition of the responsibility which may attach to its publication, in case the society should think proper so to direct. Drunkenness, as a vice, is so destructive of all morals, and as a disease, so remediless in its results; the evils which it entails are so calamitous, and the misery which it inflicts so poignant and mortifying, that it may be emphatically styled "THE COMPREHENSIVE CURSE;" involving the ruin of every faculty, whether moral, intellectual, or physical, which distinguishes man from all the irrational creation. It is no wonder, then, if all our sympathies should be enlisted in repressing its ravages and limiting its baneful influence; and it is no wonder, if in our eagerness to accomplish an object so desirable, we should lose sight of all consequences except the redemption of the drunkard: but sincerity is not truth, neither is purity of intention a justification, where ignorance is voluntary, or what is in effect the same thing, where prejudice precludes a rigid examination of that which humanity itself may even call duty. It is not our business to read a moral lecture for the direction of persons who are the guides of our youth and the exemplars of society, although we feel bound to suggest a salutary caution to all those who so far mistake, as to lend their characters and their influence to circulate a NOSTRUM, which for all they know to the contrary, though there is abundant room for suspicion, and the information is easily acquired, may produce death." pp. 17—19.

LEROY'S MEDÉCINE CURATIVE.

Few empirics have ever presented themselves with a bolder front, and under a more specious maskthan Leroy, the author of a treatise on all diseases to which the human frame is subject, considered in the compass of about four hundred duo-

decimo pages, all resolved into one essential condition, a depravation of the fluids, and all curable infallibly by one specific remedy, the vomi-purgative of Leroy! All other remedies are inert, or positively injurious; bleeding, if it give temporary relief, shortens human life at the prodigious rate of ten years for every pound lost! All other vomits and purgatives too are death to the patient. It is only this curative vomi-purgative which can remove any one and all—diseases simple or combined—whether sthenic or asthenic—depending upon excessive or defective action, &c. Even disorganization of structure, and lesions of solids, are not proof against the all-healing powers of this curative medicine. It has been no slight recommendation of this medicine to the unthinking, that instead of being kept secret, as specifics generally are, this panacea has been promulgated, and the very principles upon which it acts communicated, as by an oracle, to the universe. This candour has not been indulged without cause or motive. The cause has been the rigid enforcement of an excellent law which obtains in France, prohibiting all *secret* remedies:—the motive, to effect the overthrow of existing medical doctrines, and by singularity to obtain renown and opulence. The means have not failed of success. The book of Leroy has run through upwards of a dozen editions, and his medicine has obtained currency in almost every country penetrated by the French. The West Indies have particularly been inundated by his solutions and his mixtures; and it has fallen to our lot to witness more than one instance in which the indiscriminate and injudicious use of this evacuant, *par haut ou par bas*, has been attended with almost immediate fatality. Did the case require it, or was the book of Leroy more widely known in this country, we might be at the pains of exposing its contemptible absurdities. This is, however, unnecessary. With a single exception we have not heard of a regular physician authorising the use of this medicine: safe, and even beneficial in the same cases in which purgatives generally are, but like them liable to abuse, and capable of effecting incalculable mischief in the hands of the ignorant.

The following description of this medicine we copy from the Report:

"The following is Leroy's recipe for the preparation of his vomi-purgative:

℞ Fol: Sennæ Opt. ℥iv.
Vin. Hispan: ℔iv.

"Infuse for three days, frequently shaking the mixture, and obtain the tincture from the senna leaves by strong expression. To each pound of the wine add one drachm of tartarised antimony, and filter for use.

"The dose for an ordinary adult is a table-spoonful; to a child of seven years, half the quantity, to be repeated in an hour and three quarters, and then every hour and a half till the proper effect be produced. His rule is, to produce seven or eight full emetic and cathartic operations, but he has no objection to its going much beyond this point. His usual plan is to commence the treatment of all diseases situated in the upper parts of the body (such as are located above the pyloric orifice of the stomach) by giving one, two, or three doses of the vomi-purgative, at short intervals, until a certain degree of amelioration of the disease be obtained, and then to follow up the treatment with active and violent purging, till the disease is completely subdued, allowing of no other intervals to this daily purgation, than what the exhausted state of the patient may require. All diseases situated below the part indicated, he trusts solely to his purgative, repeated daily, or as nearly so as possible, to the final extinction of the disease. Some obstinate cases of disease, he says, will require from 60 to 100 doses of his medicine, before they will be entirely overcome. He makes his purgative of four degrees, which differ from one another only in the relative quantity of its ingredients. The first degree, he gives to children and very debilitated subjects, and is one-fourth weaker than the second degree, with which he commences the treatment of ordinary adults. The third degree is one-third stronger than the second degree, and is given where this last fails in a given quantity to produce the desired effect. The fourth degree is twice the strength of the second degree, and is in like manner resorted to where the third degree fails.

"The following is his recipe for the second degree, the ordinary preparation for adults.

℞ Pulv: Res: Scammon: ℥ ii.
Pulv: Rad: Convol: Turpeth: ℥ i.
Pulv: —— ——— Jalap: ℥ viii.
Alcohol dilut. ℔ xii. M.

"Infuse for 12 hours in a heat of 76°, strain, and add to the tincture the following syrup:

℞ Sennæ opt: ℥ viii.
Aq: bullient: ℔ ii.

"Infuse for five hours, express and add to the liquor sacchar. alb. lb. iiss. and boil to a syrup.

"The commencing dose of this purgative is two table spoonfuls fasting, which should produce from twelve to twenty full alvine evacuations. The dose to be gradually increased, if necessary, till it produces its proper purgative effect. If four table spoonfuls of the second degree does not answer the purpose, then that of the third degree must be resorted to in the same commencing dose as the other, and, in like manner, increased to the same quantity; when if it does not produce the desired effect, it must give place to the fourth degree, in doses of four table spoonfuls, and increased, if necessary; which degree will always be found quite sufficient for any case. A free use of diluent drinks is allowed during the operation of the purgative, and an infusion of tea may be given, to moderate the effects of the emetic in some cases. All other remedial agents are declared to be absolutely injurious, except, perhaps, blisters occasionally: as he has obtained good effects from their application to parts remote from the seat of the disease."—pp. 23—25.

SWAIM'S PANACEA.

That this medicine has been very efficacious in the cure of syphilitic disorders, is probably known to every one of our medical brethren in this country. With its history and composition they are not likely to be so generally acquainted; we shall, therefore, avail ourselves of the labours of the Committee, and present them with a brief account of this article, which has proved so profitable to its supposed inventor, and unfortunately obtained the sanction of so many authoritative names in the profession itself. We say unfortunately, because, although the medicine be allowed to be ever so excellent an article in the treatment of disease, still its adoption and recommendation by regular physicians, as long as it bore the name of a nostrum, was calculated to do harm, "by inspiring the public with increased confidence in nostrum-mongers, and thereby multiplying the number of those speculators on vulgar credulity."

The remarks which apply to "Swaim's Panacea," may be safely extended to the "Columbian Syrup," "Parker's Vegetable Panacea," "Potter's Catholicon," "Skinner's Panacea," "Scott's Panacea," Wilson's do." &c. &c. &c. and also

according to the Committee, to the "Syrup of Salza of De Angelis," all of them being essentially the same.

They all appear to be "very concentrated decoctions of sarsaparilla, formed into syrups, with other articles of little or no efficacy to disguise their true character." The base of them all therefore is the same, and their model is the "*Sirop de Cuisinier*," of which the following is the recipe:

℞ Rad: Sarsap: ℔ ii.
Aq: tepid: O xii. Infuse for 24 hours, afterwards boil 15 minutes, express, and to the residuum add
Aq: O x. boil to O vi. repeat 2ce or 3ce, then mix all the liquors, and boil gently with
Flor: Borag: off.
Flor: Rosar:
Fol: Sennæ
Sem: Anis: āā ʒ ii. Reduce to one half, strain, and add
Mel: com:
Sacchar: āā ℔ii, and boil to the consistence of a syrup.

The dose is one or two ounces, with or without a grain of corrosive sublimate added to each pound. The sarsaparilla ptisan is also to be taken throughout the day.

The rob de Laffecteur is the next article noticed, and the following is the recipe for its composition, taken from M. Allion, a French chymist:

℞ Rad: Sarsap:
Arund: phragmit: āā ʒ xxx.
Flor: Borag: off: ʒ viii.
Fol Sennæ
Flor: Rosar: āā ʒ ii.
Sacchar:
Mel: opt: āā ℔vi.

Boil the sarsaparilla and marsh reed-grass in nine pints of water for one hour, strain off the decoction, and pour the same quantity of water on the residuum, which is to be boiled for two hours; towards the end of the boiling, add the borage flowers, senna and rose leaves, then strain off, and to both decoctions add the sugar and honey, and boil the whole to the consistence of a syrup.—p. 37.

This medicine was first used in this city by the elder Dr. Berger, father of the respectable practitioner of the same

name, now of this city. He recommended it in consultation with other physicians, who generally adopted it. Its subsequent history we give in the words of the Report.

"Among many patients, Mr. Swaim, then a book-binder living in this city, experienced its beneficial effects in his own person, and soon after succeeded in obtaining from Dr. N. J. Quackinboss, the practitioner who had administered it to him, the recipe for its formation, and the directions for its employment; whereupon he removed to Philadelphia and set forth his vegetable syrup, which he denominates Swaim's Panacea, for the treatment of those diseases for which the rob has been so long celebrated. In the first instance, Mr. Swaim's directions for using his panacea, for preparing the sarsaparilla ptisan, and the quantity and times of taking it, in conjunction with the syrup, were the same, nearly verbatim, as those given by Dr. M'Nevin, in the publication above referred to, for the use of the rob; but of late he has altered his directions considerably, and has ceased to insist on the conjoined use of the sarsaparilla ptisan, even in small quantities. The flavour of the sassafras in the syrup first prepared by Swaim was very perceptible, but it is now the opinion of many, that he has substituted the leaves of the pippsissewa, the chimaphila corymboso of Pursh, for the marsh reed-grass, sassafras or guaiacum, which we think very probable. However this may be, the syrup also contains the oil of wintergreen (ol: gaultheriæ); for its flavour is evident, both to the smell and taste. Swaim's object in this addition is, doubtless, to disguise the other materials, and to render the medicine agreeable to the taste; but it may also be a useful addition as a stimulant and carminative, obviating that loathing and disgust of the medicine, which sometimes occurs from its long continued use. The very profitable trade which Swaim has carried on with this article, (for it has been most extensively used, even with the approbation of many of the faculty, as we have already observed, and with effects equally beneficial with those to be obtained from its French predecessor,) has induced others to enter into competition with him, and some of them not unsuccessfully. There is every reason to believe that they are all of them virtually the same article. From the testimony of a medical man who lived for some time in France, in the same house with Laffecteur, where he prepared his rob; it appears that the sarsaparilla was the only constant ingredient, and that he was in the habit of varying the other articles as it suited his convenience, in order to render it more difficult for the public to ascertain with precision, its exact composition. However this may be, there is reason to believe that the marsh reed-grass is not entirely destitute of medicinal properties, for it has from the earliest times, possessed some reputation as an anti-scorbutic and diuretic. The pippsissewa, which it is supposed Swaim and his imitators now substitute for the sassafras or guaiacum, is probably a remedy of still more efficacy than the marsh reed-grass of Laffecteur. Many physicians think it a valuable addition,

and have been long in the habit of employing it in these syrups. They were probably first led to make this alteration, from a vague tradition existing among the aborigines of this country, that it possesses anti-syphilitic powers. However improbable this notion may be, it is very certain that it is endowed with active medicinal properties, which are essentially adapted to co-operate with the sarsaparilla, in the removal of those diseases for which these syrups are so much praised. It is admitted to be a powerful diuretic, an excellent tonic, especially in debilities of the digestive organs, and to possess a decided tendency to increase the transpiratory functions: effects, if we mistake not, to which these syrups owe much of their celebrity." pp. 35, 6.

Medicinal Properties.—We are informed that one of the committee has employed the sarsaparilla syrups very extensively in two public institutions, where ample opportunities existed for testing their efficacy in cases of the most obstinate character.

With respect to primary syphilis, it is justly observed, that the question, whether sarsaparilla will cure it or not, is of little importance, since it has been definitively settled that rest and antiphlogistic means are generally sufficient for its removal. In syphilitic ulcerations, the slow operation of the medicine does not warrant its use. But the Committee go on to observe—

"Not an uncommon sequela, of ill-treated and protracted syphilis, is an ulceration in the back part of the posterior fauces, of a character altogether dissimilar to syphilitic sore-throat, in which the remedy may be employed with advantage. These ulcerations are of an indolent and languid character; so much so, that they frequently make considerable progress, before the patient is aware of their existence. They seem to be rather a melting away of the soft parts, than the effects of inflammation. They present smooth, uneven, rounded edges, and an uneven, tuberculated surface, covered with a whitish slimy matter, which partakes more of a morbid secretion of the mucous membrane, than of ordinary pus. If the disease be not arrested, it finally extends downwards, and produces phthisis laryngitis. It is usually complicated with the other symptoms of the mercurial disease, as cutaneous affections, disease of the joints, ligaments, &c. to be hereafter described, and is commonly the last to yield to the influence of the remedy: often rendering it necessary to continue it for six or eight months, and after all, requiring the application of some stimulant or caustic solution, to cause the parts to heal. A strong solution of the sulphate of copper answers this purpose very well, after the habit has been sufficiently changed and renovated by the internal remedy." pp. 40, 41.

Syphilitic affections of the cutaneous and osseous system will be benefited by a course of the syrup and decoction, continued for six or eight weeks, but the muriate of mercury in small doses will expedite their removal.

Ulcers occurring in a vitiated habit, and which are aggavated by mercury, will frequently yield to this remedy.

There is an affection nearly allied to scrofula, over which the sarsaparilla exerts much control. It is thus described in the Report:

"The most extraordinary symptoms are, inflammatory affection of one or more of the joints, most usually the knee, wrist, elbow or ankle joints; more rarely the metacarpal finger and sterno-clavicular articulations. The inflammation of the joints is, in the first instance, of a sub-acute character, attended with soreness and tenderness to the touch, some stiffness on motion, a moderate degree of swelling, with pains darting through them, and little or no discoloration of the integuments; but as the disease goes on gradually aggravating, the swelling augments, becomes red and tender to the touch, more or less painful, with the supervention of general pains throughout the system, which continually harass the patient night and day, wearing him out with the hectic of irritation. Sometimes these swellings occur on the dorsum of the metacarpal or metatarsal bones, in the course of the fore-arm and leg, more rarely on the other bones, and run the same course as the affection of the joints. They are usually much larger and more prominent than the true syphilitic node. If submitted early to a proper course of treatment, they are usually dispersed, otherwise they only diminish in size, lose their inflammatory character, and leave the joint or part with a limited degree of motion and use. Besides the thickenings and inflammations of the articulations and bony envelopes, there is frequently ill-conditioned and indolent ulcerations on different parts of the body, especially on the hairy scalp and face, and in the posterior fauces, as before described. Under this load of disease, the constitution, before impaired, suffers severely; the pulse becomes small, irritated, and frequent; the skin moist and clammy, alternating with a state of dryness and morbid heat, with foul tongue, inappetency for food, and an irregular state of the bowels, inclining to looseness. As the disease progresses, the rheumatic pains become more constant and severe, the febrile irritation more intense, with evening exacerbations, night sweats, colliquative diarrhœa, progressive emaciation, and a general failure of the vital powers. This form of the disease requires a regular course of the syrup and decoction, to be continued for six or eight months; sometimes even longer. The amendment is always very gradual, often not very perceptible after four or five months treatment. The first indication of the disease yielding, is some improvement in the general health, with return of

appetite and quiet nights. If the disease has been of long standing, the joints usually remain somewhat swelled and anchylosed, but otherwise the patient will recover his health with a renewed tone and vigour of constitution." pp. 42, 43.

In thickenings of the periosteum and many chronic eruptions not venereal, it has also proved of service.

Cancer, common rheumatism, gout and chronic hepatitis do not seem to have received any check from this medicine.

In scurvy it would probably be a useful adjuvant of other means.

III. *Modus operandi.* The observations of the Report on this point are interesting, and deserve to be extracted.

"The most constant and evident effect of these syrups is, to maintain the bowels in an open and relaxed state: so great is this tendency, that the greater number of patients labouring under mercurial disease, the sequelæ of syphilis, or such as are much debilitated, are not enabled to take more than the half, or even the third of the quantity directed by Laffecteur. In some instances, they will not bear more than a table-spoonful thrice a day, without producing excessive alvine discharges. Laffecteur acknowledges the same effect himself, by directing, that should the rob produce more than three evacuations in the twenty-four hours, that its quantity should be lessened. We have ourselves observed, that its effects were most decidedly beneficial, when it regularly produced one or two free alvine evacuations daily, and would therefore propose that this effect should regulate its exhibition. Two or three ounces daily will, in the majority of cases, accomplish this end. We have no doubt that the syrup also increases the transpiration and the urinary flow; at least, this was found to be the case, from exhibiting the sarsaparilla in powder, though these effects were not nearly so evident as when the patient took conjointly a quart of the strong decoction daily. Besides these effects, the medicine exhibits tonic powers. Under its regular and continued use, the appetite gradually improves; all the functions indicate the existence of a moderate state of excitation, more especially those of nutrition, and the patient acquires a degree of vigor he had long been unaccustomed to, with a plumpness, sometimes even a state of fulness approaching to plethora. That the sarsaparilla is a mild tonic, is now generally admitted, and has of late been much employed with the best effects, in debilities of the digestive organs. A part, however, of the invigorating and nutritive effect of the remedy may be fairly assigned to its saccharine and mucilaginous properties. Were this not the case, a decoction of the sarsaparilla, which extracts all the active properties of the root, should be equally beneficial with the syrup, which does not accord with our observation. Neither, on

the other hand, will the syrup, without the decoction, produce the same good effects as when both are employed. In many obstinate cases it will even totally fail, the combined action of the two forms being necessary to bring about that change of system which is indispensable for the restoration of health. On the whole, then, we are of opinion, that the good effects of this medicine are to be attributed to its maintaining a very moderate and general excitement throughout the system, diluting its fluids, and accelerating the action of all the emunctories, especially those of the skin, kidnies, and digestive organs, and thereby eliminating the fluids that had become altered and vitiated, from the long irritation of morbid action; at the same time that it supplies a mild and healthy nutriment to repair the losses of these increased discharges.

"The low and abstemious diet enjoined by Laffecteur during the treatment, we have never insisted on. Debilitated patients, who take two or three ounces of the syrup daily, with a quart of the strong decoction of sarsaparilla, which is as much as they can be induced to continue or they can bear, without oppressing the stomach, are not much inclined to overeating, and we merely advise them to refrain from stimulating drinks, and to take food that is nutritious, and of easy digestion."—pp. 46—48.

In conclusion, we have to express our thanks, in common with our brethren, to the Members of the Committee, who have presented us with these able and highly interesting Reports. We think them calculated to do essential good, both in and out of the profession, and to reflect no ordinary credit on the Society under whose sanction they are set forth. We hope the labours of the Committee will not rest here. There is an Augean stable before them, it is true, but it will be no difficult task, after their first successful attempt, to cleanse it thoroughly, and we hope effectually. The two last Reports are from the pen of Dr. CHARLES DRAKE.

QUARTERLY HISTORY

OF

IMPROVEMENTS IN MEDICINE AND SURGERY.

Foreign.

PATHOLOGY.

Chorea, Fatal.—A fatal case of chorea is so rare, that the dissection of a choreal patient is a treat to the pathologist. The following case occurred in the hospital practice of Dr. Hawkins, and is detailed in the March Number of the Medical and Physical Journal.

Case. Eliz. Smith, aged 17, was admitted into the Middlesex, on the 5th September, 1826, having suffered, seven weeks previously, from a severe attack of rheumatism, chiefly in the knees and shoulders. This had got better, and a fortnight before the date of her reception, she had been seized with involuntary convulsive motions in the legs, arms, and neck. These had continued ever since, with great violence. The catamenia had been suppressed for four months. She had now complained of head-ache, thirst, and pain in her back—pulse 96—tongue loaded—bowels constipated. Dr. Hamilton's plan of purgation was fully but unsuccessfully employed. The calomel, senna, turpentine, &c. never failed to dislodge copious and dark-coloured motions; "but they procured not the smallest alleviation of the convulsive spasms, which resembled those with which hydrophobia exhausts its victim." The unfortunate patient could not hold her head quiet for a single minute, and the grinding of the teeth was so violent as at last to force out the incisor teeth from the lower jaw. The convulsions were uninterrupted, except by short intervals of broken sleep. The intellectual faculties did not seem to be impaired. On the second night after admission, she was ordered into a warm bath, which measure, unfortunately, aggravated the convulsions, "and produced such an accession of irritation, and even of inflammatory symptoms that it was deemed necessary to take from her sixteen ounces of blood." The blood was inflamed. The bleeding was repeated on the following day, but produced very little alleviation of the spasms. After the failure of the purgative plan, a short trial was

given to musk, without any effect. Camphor and opium succeeded in procuring some sleep; but after the second administration of these remedies, she slept soundly—awoke, and soon afterwards expired, 13th of September.

Dissection. No morbid appearance could be discovered within the cranium. In the upper part of the lungs there were some tubercles of a large size, and several earthy concretions were deposited in various parts. There were some adhesions between the liver and surrounding parts—"intestines healthy in appearance"—omentum and mesentery studded with numerous cysts, some containing a black semi-fluid matter, others containing calcareous depositions. Several large concretions were also found in the substance of the pancreas. The uterus was rather large and vascular, and the lining membrane of its body and fundus highly injected. The fallopian tubes and ovaries contained a good deal of the black matter above-mentioned.

Dr. Hawkins observes, that, granting irritation of the brain and nervous system to be the proximate cause of chorea—"sufficient cause for such irritation was met with in the preceding case"—viz. the earthy concretions. We cannot accord in this opinion. Surely these concretions were not the product of three weeks, the date at which the convulsions began—and if they previously existed, which they certainly did, why did they not produce irritation? It is evident, indeed, that the dissection threw no light on the cause of chorea, and therefore we must still regard it as capable of being produced by irritation which leaves no cognizable trace of its existence in the dead body. Dr. H. does not say whether the mucous membrane of the stomach and bowels was carefully examined. From the state of the secretions and excretions, it is manifest that the digestive organs were in a very deranged state, and it would have been very desirable to have minutely investigated the whole internal surface of these organs; for *there*, we think, the source of irritation existed. From the numerous depôts of melanoid matters, in this case, we apprehend that this unfortunate girl would have ended her days under that terrible malady, *melanosis*, even had she escaped from the convulsions. Finally, we question whether this disease was fairly entitled to the name of CHOREA. Was it not more properly CONVULSIONS?—*Johnson's Medico-Chir. Rev.*

Broussais on Asthma.—M. Bonnez, assistant surgeon of the 10th regiment of Chasseurs, in garrison at Libourne, aged 36 years, had the imprudence to bathe in a river, after a hearty dinner, on the 18th of July. In the middle of the night he was seized with general malaise, succeeded next day by fever, head-ache, coryza, and cough. During the night of the 19th he had no rest. On the 20th the phenomena changed into a complete attack of convulsive asthma, (the second paroxysm which he had experienced, the first being three years before) and he then sent for his medical colleague. Ten ounces of blood were taken from the arm, and pediluvia applied to the feet. By these means the symptoms were relieved, and the night of the 20th was spent less miserably. 21st, the paroxysm returned, and con-

tinued till near the evening. The anhelation this day was very distressing, and an antispasmodic julep was ordered, which augmented the dyspnœa, and brought on another paroxysm of asthma. The night was spent in a state of agitation. 23rd, Ipecacuan had been taken in small doses, and also castor; but the paroxysm returned this day, with as much violence as before. 24th, The asthmatic paroxysm came on at the usual hour, six in the evening. On the 25th, Dr. Bagard, was called in, and found the patient with the following phenomena:—dejected countenance—eyes sunk—breathing short—pulse small and quick—tongue coated—great tenderness at the epigastrium—oppression under the sternum—abdomen rather tense—urine scanty and high-coloured. Sixteen leeches were applied to the sternum and epigastrium, the bites to be encouraged by cataplasms—very low diet—diluents—lavements. The succeeding paroxysm (26th) was very much milder, being only a simple dyspnœa. 27th, When Dr. B. visited his patient, the latter observed that he was quite well, and had a strong desire for food. But it was evident that the patient was not well.

At the usual hour, the dyspnœa returned, accompanied by some cough. 28th, Felt very well all day, till six o'clock, when the dyspnœa returned as usual. Dr. B. now being struck with the periodicity of the complaint, and seeing nothing wrong with the digestive organs, prescribed the sulphate of quinine, in doses of three grains every three hours. The next paroxysm was prevented. The remedy was continued for three days, and the patient was free from complaint. On the 6th August, however, when M. Bonnez thought himself in complete security, he was suddenly seized with pain in one side of the chest, with fever, cough, head-ache, &c. Cupping-glasses were applied to the side, and afterwards a large blister. But these means were of no avail. The symptoms became exasperated, and the sputa sanguinolent. When Dr. B. was again called to the patient, he found him with violent head-ache, acute pain in the right side of the thorax, intense fever, full pulse, burning skin, and countenance indicative of despair. It was now evident to Dr. B. that the inflammation had spread from the mucous membrane to the pulmonary parenchyma, and even to the pleura. Dr. B. advised the application of 25 leeches to the chest; but the regimental surgeon protested against any more leeches, and our author took his leave. Two other physicians were called in, and ventured on the abstraction of six ounces of blood from the arm. This made no impression on the complaint, and Dr. Bagard was recalled. He applied 25 leeches to the chest, which, with a blister, completely removed the disease.

M. Broussais' Remarks.—Most cases of Asthma depend on some obstacle to the course of the blcod; and this obstacle is most commonly a disease of the heart. This, however, is not always the case. A determination (however induced) of blood to the mucous membrane of the lungs, in a sanguineous subject, will often give rise to a paroxysm of asthma, as was the case in the above instance. M. Broussais has known inflammation and irritation in the mucous membrane of the stomach and bowels induce a fit of what is called spasmodic asthma. The Professor ridicules the distinction

drawn between dry and humid asthma. Every asthma is dry at the commencement of the paroxysm, and the mucous membrane ultimately throws out a secretion which relieves the vessels of the lungs. In all cases, however, of asthma, M. Broussais avers that there is a congestion of blood in the vessels of the membrane lining the bronchia and air-cells, and that this should be looked upon as the proximate or immediate cause of the phenomena, and treated accordingly.—*Ibid.*

Chronic Diarrhœa.—There are many forms of this disease evidently dependant on ulceration or other organic lesion of the mucous membrane of the bowels, the consequence, or at least the sequence of dysentery. But there are some other cases of obstinate diarrhœa, where the disease goes on for years, and where dissection, after all, detects no organic change in the intestines. Dr. Baillie has described "a particular species of purging, which is but little known, and has generally proved fatal. The alvine discharges resemble a mixture of lime and water, with froth on the surface, It most commonly occurs in people who have resided in warm climates, and suffered from hepatic affections: but not exclusively in this class. When the disease is in a mild form, the evacuations are of the consistence of pudding, and of a pale colour. Under such circumstances, and especially if the motions be occasionally figured, the patients may live many years with the complaint. They have usually a sallow countenance—are thin, but not greatly emaciated—have tolerable appetites—white coated tongues. Nothing particular can be detected when the abdomen is examined by the hand. There is no tumour—no pain on pressure—but the bowels are generally distended with air. Dr. Baillie never had an opportunity of examining any patients who died of this disease, and therefore could not speak as to its pathology. But Mr. Wardrop, in a note to his edition of Dr. Baillie's works, informs us that he (Mr. W.) had an opportunity of dissecting a patient who had been under Dr. B's care for this complaint, and that he found considerable thickening of the coats of the rectum and colon, great contraction of the calibre of the gut, with small, but deep ulcers interspersed over its surface. Dr. Seymour and Mr. Arnott, however, have each had an opportunity of examining the intestinal canal in this complaint; but in these instances, there was no breach of structure or organic alteration of any kind in the large or small intestines.

We have been induced to notice this subject in consequence of a remedy which has been introduced of late by Dr. Elliotson, at St. Thomas's Hospital—namely, the sulphate of copper, combined with opium. This zealous physician has given the remedy in a considerable number of cases of chronic diarrhœa, where all, or almost all other remedies had failed, and with complete success, in every instance. The dose is generally half a grain twice a day, with half or a grain of opium, increasing the dose to two or three grains in the day, but seldom beyond that quantity. We understand that Dr. E. made experiments with the opium alone, which failed to cure the patients—and the reason why he combined it with the sulphate of

copper, was to prevent the latter from causing pain in the stomach and bowels.

Dr. E. is inclined to view the remedy in respect to its modus operandi as simply an astringent; but when we reflect on the power which this sulphate possesses of allaying irritability when applied to external sores, we shall be induced to attribute much of its success in these cases, to its action as lessening morbid irritability of the intestinal canal. But as Dr. Elliotson's observations will probably soon be published, we shall defer any farther remarks till that period.—*Ibid.*

Milk with Urine.—The Memoirs of the Royal Academy of Sciences of Turin, (Vol. 29) contains a case by Dr. Canobio, in which milk was detected in the urine of a young female, mother of two children, and suckling the third. This extraordinary phenomenon did not affect either the child or the mother. A fourth delivery was succeeded by a similar result. An unexpected circumstance produced the separation of the mother from her infant, but the discharge instead of lessening, became more copious, and she was obliged to ask medical aid. The fluid when analysed was not found to differ from milk, except in a great excess of serum. Dr. Canobio could not detect either urea or the uric acid.—*Ibid.*

[From some excellent observations in the Edinburgh Medical and Surgical Journal, on the unmixed effects of Mercury on the system, written by Dr. Anthony Musgrave, the able author of a Treatise on the Yellow Fever of Antigua, which appeared in the ninth volume of the London Medical and Chirurgical Transactions, we extract the following practical remarks on some of the most important tropical diseases. They will every where be read with great interest, as the results of extensive experience, and the productions of a man of undoubted talents and skill.—*Ed. of New York Med. and Phys. Journal.*]

Yellow Fever.—In the more concentrated form or higher grade of fever, as it affects Europeans, which has acquired the common denomination of *Yellow Fever*—I mean the *continued*, and, if I may be allowed the expression, the more *open* type, (such as prevailed in Antigua in 1816, and of which a history, sketched for the information of my much respected friend Doctor Ferguson, has been long before the public,)—my experience leads me to believe, that mercury, administered with a view to the saturation of the system, may be judiciously dispensed with; and an opinion to this effect, which I have since seen no reason to alter, will be found in the article alluded to. In cases like these we find the heat to be intense and general —the arteries, as far as the finger can trace them, have their calibre fully distended, showing the blood to be equally distributed among their extreme ramifications. In a word, we have to rescue our patient from urgent inflammatory action, not to obviate the more insidious, but not less destructive consequences of congestion.

The immediate and rapid abstraction of blood from the arm, or temporal artery, or both, to an extent to be limited, less by the quantity, however large, than by its decided effect upon the circulation, as deduced from that degree of faintness which is accompanied by copious and general perspiration; active purgative combinations, into which calomel must liberally enter; and the external application of cold water, under the form of affusion or sponging, with occasional aid from the razor and blisters, are here to be mainly depended upon, and will, in nine cases out of ten, prove sufficient to save our patient, when employed within twenty-four hours from the attack. But we are liable more frequently to a form of fever, peculiarly calculated, from its masked approach, to lull the patient into mistaken security, and thus to baffle, in its subsequent progress, the best directed efforts of our skill; and this form is undoubtedly treated with greatest success by the rapid induction of ptyalism.

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Malignant Intermittent.—Sporadic attacks of a more or less deceitful type are indeed annually to be met with in some of the low swampy situations with which Antigua unfortunately abounds; but, towards the close of 1823, an epidemic of this kind appeared to an extent which spread the utmost consternation among all classes of inhabitants; for, singular to say, it evinced no predilection as usual for our European visitors. The whites, the coloured, and the blacks, males and females, infancy and old age, were alike susceptible of the malignant influence of the air, although that influence might be exerted with various degrees of intensity.

The disease was commonly ushered in by a mild intermittent paroxysm of brief duration. The chilly fit, occurring generally at bed time, was succeeded by moderate heat, and this again terminated by sweating towards morning; so that, among the planters, for example, who were the principal sufferers, the patient would rise at daylight, take his breakfast as usual, and proceed to his accustomed occupation, without attaching the slightest importance to the indisposition of the night. The same would be repeated on the following evening with a similar solution of a rather aggravated paroxysm. But the third return, although commencing as before, would speedily be followed by some marked derangement of the sensorium, which was probably the first signal for demanding medical advice. The individual was then commonly found talking wildly, with the heat concentrated about the head and trunk; the extremities cool, and covered with a greasy dampness; the pulse at the wrists extremely quick and small; respiration hurried; tongue brown and dry, or covered with a frothy slime; but the stomach generally retentive. Black vomit, as far as I know, was *never* observed; and discoloration of the surface with hemorrhage in *one* case only.

These symptoms too often advanced with rapid strides to their termination in death, preceded by low delirium, or coma; sometimes within forty-eight hours, generally before the close of the third day from the last accession, which completed five from the first moment of complaint. Life was

rarely protracted beyond this period without ultimate recovery, although convalescence might be occasionally tedious.

Such, in broad outline, were the prominent features of this singular modification of endemic disease—we must call it a *malignant intermittent*—in which so little resemblance can be traced to the yellow fever of authors. I have no difficulty, however, in regarding it but as an opposite degree of the same continuous scale, modified by agency which is beyond our ken,—for, although I have roughly delineated the phenomena exhibited by a very great majority of cases, here and there an example did occur in European habits of a form either continued *ab initio*, or preceded by one slight paroxysm only, and yielding to the vigorous treatment I have already described; and, among the slaves, we had an opportunity of observing every variety of the simple intermittent, which mingled itself by almost imperceptible gradations with the reigning epidemic.

I ought long ago to have recorded a full detail of the origin and progress of this visitation, which extended from October 1823 to January 1824; but what I have now said will suffice for my present purpose, which is merely to convey some slight idea of the kind of fever which I hold to be the proper subject of mercurial treatment. On this occasion indeed I am persuaded, that where no assistance was obtained, as was too frequently the case, till after the third and dangerous paroxysm was established, any improvement which subsequently took place was chiefly to be ascribed to the operation of this mineral; nor am I aware of a single recovery, under these alarming circumstances, where recourse had not been had to its use. By its unrivalled power in equalizing the distribution of blood, the accumulated mass, lying stagnant in the almost palsied organs, was gradually put in motion. These organs, consequently, resumed their suspended functions; the wonted secretions were again established, and, being copiously poured forth, the system thus became relieved from an overwhelming oppression. Such at least appeared to me to be the *modus operandi* in favourable cases. Salivation I regarded as an indication of the full action of the medicine, and therefore hailed it as the harbinger of good. I did not, however, believe it to be necessary to success,—nay, I could have wished it excluded from its effects; and, under this impression, I never failed to expunge the mercurial from my prescriptions as soon as the rising of the pulse, and the incipient restoration of heat to the extremities, gave me reason to conclude that the object at which I aimed was about to be accomplished.

Calomel was the preparation generally resorted to by all classes of the profession, upon the principles, under the restrictions, and in the doses laid down by Chisholm and Johnson; and, before ptyalism was set up, which is so much insisted upon by these authors, seldom less than one hundred, often *hundreds*, of grains were accumulated in the system. In my own practice, I found that a liberal addition of camphor economised the quantity of mercury, not only by accelerating its effects through a stimulus at once general to the system, and local to the mouths

of the absorbents along the digestive tube, but also by exerting over the purgative and griping effect of calomel a controlling power second only to that of opium, if indeed it be not altogether equal. My common prescription, therefore, after unloading the bowels, was two scruples or half a drachm of calomel, with half a drachm or a scruple of camphor, divided into twelve pills, and of these two were directed to be taken every second, third, or fourth hour, till some marked improvement was observed. No practitioner, however, who deserves the name, would blindly pursue one determined system in the teeth of conflicting indications; and it is therefore scarcely necessary to state, that this plan was in each instance modified or assisted internally by such of the simpler articles of the materia medica as circumstances seemed to render advisable; and that externally the warm bath and frictions, blisters and sinapisms, were assiduously called in aid for the purpose of soliciting the blood from the viscera to the surface. But I must not omit some special notice of the lancet and bark, lest I become amenable to a charge either of ignorance or neglect.

After many successive deaths had rendered the alarm general, and application was made for assistance at the first onset of the disease, a single bleeding, to its fullest effect upon the circulation before the orifice was closed, was uniformly successful either in at once putting the symptoms to flight, or in so modifying their subsequent character, that the identity of the attack with the prevailing epidemic was hardly to be recognised. At a later period, too, advantage appeared sometimes to follow venesection, or, more frequently the abstraction of a few ounces of blood from the temporal artery in urgent affections of the head; but, taking the sum of my experience on this and other occasions, I could wish to make it the means of impressing upon my junior brethren in the West Indies, that much danger is incurred by using the lancet too hastily after fevers of any kind have at all advanced in their course. It is further of essential importance to remark, that, when the type under review is the subject of treatment, and the propriety of bleeding is considered with reference to the duration of the disease, this duration must be reckoned, not from the last chilly fit which ushered in the persisting symptoms, but from the first intermittent paroxysm, however slight it may have seemed to the patient; for by the latter, which is the *correct computation*, the third, fourth, or fifth day may have arrived, before a careless observer would suspect that any thing like serious indisposition had commenced. When matters have unfortunately gone thus far before we are made aware of the real danger of the attack, it is now my steady conviction, that it will be invariably more judicious to confide the safety of our patient to calomel and camphor, with due regard to purgatives and external adjuvants, than to risk an attempt to move the supervening congestion, however menacing, by bleeding. The indications at this period are beyond measure fallacious; and, if a vein be imprudently opened, it will too probably happen that the distress, whether general or local, which prompted the measure, may indeed appear to subside, and the practitioner be induced for a time to congratulate himself

on its success; but, before or soon after the arm is tied up, a copious sweat will break out, which, becoming more and more profuse, with a corresponding sinking of the pulse, the patient will expire within twenty-four hours, in perfect possession of his mental faculties, and complaining of no sort of uneasiness beyond that which is inseparable from dissolution. I could wish it to be also remembered, that the same unexpected sinking may be the consequence of venesection, even at a much earlier period of *intermittent* fevers, provided a spontaneous solution of the paroxysm be on the eve of taking place; for I have seen more than one remarkable instance where the constitutional effort to throw off the heat by perspiration, co-operating unluckily with the powerful relaxation which follows the loss of blood, proved sufficient to reduce the patient to an alarming and even irretrievable state of exhaustion.

It is doubtless difficult to understand—to me it appears nearly inexplicable—why a cause, which dissection afterwards shows to have operated by a process of local disorganization, should, in the first instance, manifest its action under the mildest and most harmless form of fever, with periods—as far as the eye, the touch, and questions can detect, of *complete* intermission; and yet that the progress of the structural mischief—if we may judge from the aggravation of each successive paroxysm, and the sometimes inconceivably rapid termination of the last in death—should continue, without interruption, during these apparent cessations even of functional disturbance. Perhaps, too, it is not the least surprising fact connected with this point, that bark, a remedy to which we are in general so little disposed to commit visceral inflammation, should, under such circumstances, manifest its accustomed power; for whenever we had an opportunity, during the epidemic under consideration, of putting this power fairly to the test, we certainly had no reason to be dissatisfied with the result.—Three cases I particularly remember, in which the paroxysms, (not congestive, however,) continued to occur after ptyalism was distinctly brought on, and yielded at last, or appeared to yield, to a drachm of the powder given in a wine glassful of the decoction, as often as the stomach could bear the dose, during the absence of fever. Unfortunately we had not then procured the sulphate of quinine, of the superiority of which over every other preparation, I have since obtained highly satisfactory proofs, by extensive trial of its effects.

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Elephantiasis.—An inexperienced practitioner, who sees this complaint in its acute and early stage, would have some difficulty in conceiving it to be the first link in that chain of morbid alterations of structure, which terminates at length in the unseemly Barbadoes leg—the *bucnemia tropica* of Mason Good. Its first invasion—and the accession may be repeated under a similar form for a considerable period—is announced by very severe rigors, speedily followed by febrile heat, so pungent, that I have often been able, from these circumstances alone, to predict the supervention of the distinctive inflammation, even when the individual had never before been

subject to its attacks. This inflammation, sooner or later, within forty-eight hours, (if not primarily affecting the viscera,) betrays itself in the scrotum, the mamma, or some part of the extremities, most frequently about the ankle, or high up the thigh among the inferior glands of the groin.

Although commonly circumscribed at first, it not unfrequently diffuses itself over the whole limb, or even extends to the contiguous surface of the trunk; and when the glands themselves are not involved, indurated cords, extremely painful to the touch, can be traced to the nearest cluster. But whatever may be its original seat, the patient is never secure while the constitutional disturbance subsists, from a sudden retrocession to some vital organ. I have seen it, in the same case, translated from the scrotum to the head; from thence, after a few hours, descend with the rapidity of lightning to the abdomen—again migrate to the chest, to return perhaps to the encephalon, and prove fatal there; or, under more favourable circumstances, resume its comparatively harmless situation, and run its subsequent course as if nothing untoward had occurred; and, while occupying the different cavities, giving rise to the ordinary symptoms of acute inflammation of that particular viscus which it had selected for its temporary abode.

Now, long before my time in the West Indies, the best informed practitioners had ascertained, by experience, that, in addition to warmth locally applied, and the ordinary purgative and febrifuge medicines, mercurial saturation of the system was the best means of securing the patient against this erratic disposition; and accordingly, ptyalism was the usual companion of convalescence from an attack of this very common complaint.

As all young men ought to do, who have not unexceptionable motives for an opposite line of conduct, I adopted the practice of my seniors, and have never had cause to question the correctness of their conclusions; for I remember no case of fatal metastasis after swelling of the gums had been unequivocally observed; a subsidence of the constitutional symptoms having invariably either preceded, or been simultaneous with this effect even when the local inflammation has continued a course which terminated eventually in suppuration. I am, indeed, strongly disposed to believe, that, since the mercurial treatment has become general, the number of cases ending in a local and permanent deposition of lymph, has been materially lessened; as I could name many individuals subject to this disease, affecting the leg, the thigh, or the scrotum, whom I have attended for a number of years, and who yet continue to shake off each successive return, without retaining the slightest trace of its having existed; or, at worst, with a trifling induration of the inguinal glands. One excellent gentleman I have particularly in view; because his life being infinitely valuable to a numerous family, the case gave me more than ordinary anxiety. I found it necessary to subject him to the influence of mercury, twice or thrice annually, from my first arrival in Antigua, for attacks of this kind, placing his life in jeopardy by their sudden transition from the groin to the head or

abdomen: But, up to the time of my leaving the island, he nevertheless remained exempt, during the intervals, from the usual indications of this unlucky diathesis; and what is more, without either *nodes* or *bone-aches.* This must be deemed peculiarly fortunate in the case of a married man; as, otherwise, injurious doubts might have arisen, whether occurrences so suspicious were to be attributed to me, or not rather to indiscretions of his own.

Before leaving this subject, it may be proper to remark, that after experience had given me confidence, I was induced, when either of the great cavities was implicated, to have recourse to the lancet more boldly than was sanctioned by some of my brethren, whose opinions I respected; their objection being founded on the idea that inflammation was the *erysipelatous*, and, therefore, prone to assume under depletion a low gangrenous character. But, to say truth, even admitting the force of an objection, which is now, I believe, but little regarded, I am by no means quite sure that the phlogosis in question bears the supposed analogy to erysipelas. At all events the redness differs little from that of phlegmon,and suppuration under the form of genuine abscess is an extremely common occurrence; while, on the other hand, external gangrene is rarely, and vesications are almost never observed.

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Tetanus—another most important disease, in which, after a greater share of experience than I wish to have again, of almost every mode of treatment which has been proposed, I have for some years placed considerable reliance on large doses of calomel, in combination with opium and camphor, preceded by copious blood-letting, when not forbidden by circumstances, and aided by active purgatives, and the external treatment which I shall immediately have occasion to mention. During the course of my professional career I have had the satisfaction to see numerous recoveries from the most aggravated degrees of the traumatic form of this complaint. Whether *post* or *propter*, with reference to the remedies employed, it may be competent to any man to question. But when we contemplate, without prejudice, the Herculean weapons which have been wielded in these struggles, between the physician and the disease, if we are sceptical enough to doubt their agency in the *cure*, we cannot choose but wonder that they failed to *kill.*

As a recent example of the practice to which I allude, and of its *occasional*, I would I could say its *general* success, I may sketch the case of a stout young negro, John Dickman, a slave of Captain Thomas Clark.—This man, in the course of his duty as a seaman, on board a small coasting-vessel or drogher, had his right hand extensively lacerated by a haul-yard drawn through it with great velocity, by the accidental falling of a heavy weight, to which the opposite end of the rope was attached. The flexor tendons were denuded and severely bruised, and the distal phalanx of the middle finger was forcibly torn away. Tetanic symptoms super-

vened on the tenth, and assistance was demanded on the eleventh day from the accident.

The patient fell chiefly under the care of Dr. Furlonge, who then practised with me, but was often seen by myself. He was blooded twice to syncope on the first day; and a blister was afterwards applied, extending from the sacrum to the occiput, and was not allowed to heal. The wound, after a free division of all partial adhesions, was dressed with equal parts of the oil of turpentine and laudanum, applied on caddis, which was frequently changed, and covered with a large warm poultice; and frictions were diligently instituted about the jaws, the neck, and epigastric region, with a strong anodyne liniment, or powdered opium, rubbed up into an ointment with lard. Active purgatives (such as the *Ol. Terebinth*, when the powers of deglutition permitted; the pulvis jalapæ comp. with croton oil, suspended in cinnamon water, or castor oil following upon an uncombined ℈*i.* of calomel,) were also occasionally interposed, and quickened, when necessary, by stimulating glysters. But the prescription which was assiduously persevered in, from the 6th to the 15th of the month, (or for ten days inclusive,) was ℥*i.* of calomel, ℈*ii.* of camphor, and ℈*i.* of opium, with the due proportion of conserv. ros. divided into six boluses, of which he took one at various intervals, ranging from one to four hours, according to the urgency of the spasms, till he had consumed the amount of *ten* such formulæ; and, adding the quantity given with the purgative medicines, I find, on consulting my notes, that 670 grains of calomel were prescribed for this man, within the short period I have specified. Some allowance must doubtless be made for waste in administering the boluses, in a case where the difficulty of swallowing was sometimes as alarming as inconvenient, from the violent spasms which convulsed the muscles about the throat. But a more resolute fellow I have never had occasion to treat. I have seen him pause over a dose till he was enabled, as it were, to take the spasms by surprise, and then suddenly gulp the bolus with success; and in this way an enormous accumulation must, after every deduction, have taken place in the system. Yet, it is very remarkable that, while reckoning at best upon a frightful ptyalism as soon as the constitution had resumed its obedience to ordinary impressions, I was both delighted and beyond measure surprised to find, that perfect recovery was established, without even a swelling of the gums.

Observations on Mercury.—As the judicious interposition of the lancet renders the system more obedient to the influence of mercury, so undoubtedly does mercury, in combination with antimony and opium, obviate the necessity of recurring again and again to the lancet; and hence, by skilful management, we can secure to ourselves the co-operation of "the right and left hands of medicine," so that they may be made mutually to spare each other, by giving and receiving assistance in opposing the ravages of acute disease. This is indeed an advantage of the highest importance, for I know of no practice more fraught with peril to the patient than that

of *reiterated* bleedings. No man who has been accustomed to meet me at the bedside will be disposed to question my firm reliance on the salutary powers of venesection, when prescribed at proper stages. Few, perhaps, have drawn larger quantities of blood than I have within a given period. Yet I unhesitatingly express my conviction, that in enteritis, pneumonia, and (with reference to this last point) I may add apoplexy and injuries of the head, many an individual has been hurried to the grave merely because the student is taught that blood-letting is the *sine qua non*, the *unicum remedium* on those occasions, and therefore, on entering upon practice, knows not what else to do. Surely, after having emptied the vessels to a reasonable extent without success, we can at worst only lose our patient by giving nature a little play, whereas, by farther interference, we shall too probably be at once deprived of all chance from her *vis medicatrix*, which ought never to be held in contempt. Several times has an unlucky third or fourth bleeding appeared to me to accelerate and enfeeble a tolerably steady pulse to a degree from which it has gradually proceeded to entire extinction; and, although the effects of this kind of exhaustion have presented themselves to me under a form somewhat different from that which has been described by Dr. Hall, I am still gratified to observe that the attention of the profession is likely to be more pointedly turned, by his remarks, towards a species of danger which has been hitherto not sufficiently appreciated.

But I have dilated too largely upon the diseases which have already passed under review, and it therefore becomes necessary that I now bring the list to a close, by comprising in few words, that in *dysentery*, *rheumatism* of every kind, and all *acute inflammations*, whether of the head, chest, or abdomen, which assume a menacing character, calomel and opium, with emetic tartar or camphor, or both, are very commonly relied upon after, or in conjunction with bloodletting, purgatives, and blisters; and that the tropical practitioner, who is unacquainted with the influence of alterative doses of mercury over those *ill conditioned sores* (not venereal) to which the slaves are occasionally liable, is ignorant of the most effectual means of affording relief to a very important class of his patients. With such doses, and a regulated diet, these ulcers will yield to the simplest dressings;—without them, the pharmacopæia chirurgica may be exhausted in vain.

I believe you are aware that in my part of the world we have no professional distinctions. We are all of that class which, in Great Britain, would be denominated *general practitioners*, that is to say, we prescribe, we amputate, or have recourse to the forceps or crotchet as occasion may require; with this disadvantage, however, that, in obscure or difficult cases, we are without appeal to those who have exclusively devoted themselves to either branch of practice. This state of things obliges each member of the profession to keep an establishment for dispensing his own prescriptions; and it hence occurred to me, as soon as my thoughts had been turned to this subject, that I might render the weight of my individual testimony respecting the unmixed effects of mercury on the system

more definitely appreciable, by ascertaining the quantity of its different preparations actually consumed by my own patients, or those of my partners or assistants under my immediate inspection, from the time of my first embarking in practice to the present day. I accordingly wrote to our druggists, Messrs. Gordon and Graham, of Oxford Court, Cannon Street, London, with whom I have corresponded during the whole period, requesting a reference to their books, and a memorandum of the amount of their shipments to Daniell and Musgrave, to myself, and to the existing firm of Musgrave and Crichton; and, by their letter of the 10th of April, I find that, from the latter end of 1814 to the year 1826, they have actually supplied, to these several addresses, 111 pounds of calomel, 61½ of blue pill, and 131 of mercurial ointment; the average consumption of the last four exceeding, as might have been anticipated, that of the eight preceding years; being about twelve pounds annually of calomel alone. It must be remembered, besides, that my experience has been by no means confined to the quantity dispensed in my own establishment, for I have always been a good deal engaged in the cases of others; and indeed, for many years, the consultations throughout the island have been almost entirely divided between my friend and partner Dr. Crichton and myself, both before and since the juncion of our interests, which took place in January, 1825.

Looking, then, upon the formidable catalogue which I have thought it advisable to submit for consideration, with the evidence now adduced of the quantities of mercury I have seen expended in treating the diseases which this catalogue embraces, can you hesitate to concede to me a right which you would, doubtless, in my place, claim for yourselves—that, namely, of inferring—if not the absolute *impossibility*—at least the extreme, the almost inconceivable *rarity* of occurrences which could altogether have escaped the most watchful observation during the period, and under the circumstances to which this letter refers? And assuming a concession which cannot, I apprehend, be consistently withheld, may I not confidently go farther, and ask of those who believe in the pernicious influence of mercury on the bones and their periosteum, the throat, and the skin, how this belief is to be squared with the assertion which I now unequivocally make,—in terms and by facts which court publicity, in order that they may be rebutted, if possible, by the testimony of others,—that I have never either seen or heard of a case where symptoms, bearing the stamp of secondary syphilis, in the common acceptation of these words, were even *suspected* to be the offspring of mercury administered for the cure of any other disease,—that the *only bones* I have ever seen, either immediately or ultimately, affected by the most aggravated cases of mercurial mismanagement, were those of the upper and lower jaw, whose vitality might have been partially destroyed by a process of denudation, caused by extensive sloughing within the mouth, which involved their periosteum,—and that the sole injury I have had occasion to notice after recovery from excessive ptyalism, which could even *by supposition* be connected with any but the two bones I have mentioned, was on one occasion a paralysis of the *por-*

tio dura of the right side, producing that peculiar effect upon the countenance, so well described by Mr. Bell? This paralysis, however, evidently arose from the thickening of some portion (probably the lining) of the canal, through which that nerve passes from within the cranium to the face, caused by inflammation extending to it by *direct continuity* of parts.—*Edinburgh Med. and Phys. Journal.*

MATERIA MEDICA AND CHEMISTRY.

On the Composition of certain Black Vomitings and their analogy with the Black Matter of Melanosis. (*Journal de Chimie Medicale, Septembre* 1826.)—M. Lassaigne has recently analyzed with great care the black matter vomited in a case of scirrhous ulceration of the stomach, and has found that its colour, as was conjectured by M. Breshet, is owing to blood, altered in its properties nearly in the same manner as in melanosis. The patient had long been evidently affected with scirrhus of the stomach, was seized lately with profuse vomiting of a black fluid, and after death the whole pylorus was found scirrhous and ulcerated, with an aperture communicating with the cavity of the third curvature of the duodenum.

The matter vomited had a chocolate brown colour, and held in suspension darker-coloured flocks, which gradually fell to the bottom, leaving a reddish-brown fluid, resembling a solution of altered blood. The fluid was acid, but gave, by distillation at a low heat, a very alkaline liquid containing much ammonia. The residue was strongly acid, gave out much ammonia with potash; yielded to alcohol a solid acid possessing the properties of the caseic acid procured by Proust from old cheese,—a fluid acid, which M. Lassaigne pronounces to have been the lactic, but which, according to the late corrections of Berzelius, the discoverer of that supposed acid, must have been modified acetic acid,—and a little osmazome; and the residue after the action of alcohol consisted of a principle intermediate according to M. Lassaigne between mucus and albumen, but which, from the properties he mentions, appears to have been casein. The dark flocculent matter was evidently altered blood, for weak sulphuric acid acquired a reddish-brown colour when gently heated with it; the solution yielded with ammonia reddish-brown flocks, which when dried, resembled exactly the dry colouring matter of the blood; the alkalis acted on the original flocculent matter as on blood; and when incinerated, it gave distinct indications of the presence of oxide of iron and phosphate of lime.

The analogy between the sediment of the matter vomited in this case and the black matter of melanosis, is therefore very great. The presence of the caseic acid has not to our knowledge been remarked in any of the natural solids or fluids, and consequently, as M. Lassaigne suggests, it appears to be a pathological formation.—*Ibid.*

Adulteration of Sulphate of Kina with fatty matter, and the mode of detecting it. (*Journal de Chimie Medicale, Septembre* 1826.)—The sulphate of kina is now so completely established as an article of the Materia

Medica of France, Italy, and Britain, that it is not only prepared in these countries in large quantities from bark, but is also imported ready made from the new world. Its value can no longer be called in question. It is of great consequence, therefore, to secure the practitioner and the druggist against its adulteration, which unfortunately is too easy to accomplish and not always easy to detect. The adulteration we have to notice was discovered by M. Chevallier of Paris. The adulterating substance was stearine, one of the component principles of most fatty matters, the crystalline form of which resembles very nearly that of the sulphate of kina: and the proportion in the article was eight per cent. M. Chevallier suspected the presence of some foreign substance in consequence of the taste being not only bitter, but likewise acrid, and irritating to the throat; and he subsequently found, that, when gently heated in a silver spoon, the crystals yielded a fluid which concreted by cooling, and was evidently greasy. He afterwards found that this portion possessed all the properties of stearine. The method he recommends for detecting this adulteration is a very simple one. Diluted sulphuric acid rapidly dissolves the sulphate of kina, and leaves the stearine, which may be collected in a concrete cake by heating the mixture short of the boiling point of water, and then allowing it to cool, when the stearine will concrete on the surface. This process will also detect other adulterations with some acidular crystalline bodies of the animal and vegetable kingdoms. There is a very easy kind of adulteration, however, which it will not detect,—namely, that with the acidular crystals of sulphate of lime formed from an acidulated sclution of that salt. This is easily detected by the residue left after incineration. The sulphate of kina is of course wholly dissipated by incineration.—*Ibid.*

Poisonous Matter in Offal.—In the April Number of the *Med. and Phys. Journ.* Mr. Brodie has stated three cases where a remarkable train of local phenomena followed the handling of offal. We shall give a summary view of these cases.

Case 1. A healthy young man cut his fore-finger, while engaged in feeding dogs with sheep's offal. The wound healed in two or three days; but then the end of the finger was found to be inflamed and swollen, as far as the second joint—extending slowly over the first phalanx—up the outside of the hand, as high as the wrist, then downward over the middle finger—again upwards on the palm of the hand to the wrist—and lastly downwards over the whole of the ring-finger, and the first phalanx of the little finger. The inflammation was marked by deep redness of the skin, with slight tumefaction and tenderness. His general health was unaffected. The complaint ran a course of six weeks, and then disappeared without any medical assistance.

Case 2. A cook at an hotel scratched his finger with the extremity of a rib, while eviscerating a hare. In two or three days inflammation occurred, and extended up the finger to the back of the hand, and thence downwards over the adjoining finger, and so on, leaving one part as it invaded another.

It was three weeks after the accident when Mr. Brodie saw the patient. The inflamed parts were of a crimson redness, and rather painful and tender on being handled. The health was unaffected. Leeches had been several times applied, but without benefit. Mr. B. prescribed some local applications, which appeared to do little good. The oxymuriate of mercury, in doses of an eighth of a grain, was then given twice a day. In three weeks the redness and swelling had much abated; but there was considerable pain in the hand, extending along the fore-finger. One drachm of the powder of sarsaparilla was ordered thrice a day, in addition to the oxymuriate. In a week of this treatment, the inflammation had nearly disappeared, a numbness and pain remaining, which extended up to the shoulder. This continued for two weeks longer, and then subsided.

Case 3. A woman pricked the middle-finger with a splinter of bone, while cleaning the inside of a hare previously eviscerated. On the following day there was slight inflammation, which increased during the succeeding week, attended with pain and sleeplessness. One week after the accident, Mr. Brodie saw the patient, the whole of the middle-finger being then inflamed and swollen, the skin tense and shining. The patient complained of tingling and throbbing pain, which prevented sleep; but there was little or no disturbance of the general system. One-eighth of a grain of oxymuriate of mercury was prescribed, bis die, and the application of a poultice. In eight or ten days the inflammation was checked, and soon afterwards disappeared.

We think that these cases go to show that there is absorption of a morbid poison or septic principle, analogous to what we see in dissection wounds, though on a minor scale of virulence.—*Ibid.*

MEDICAL JURISPRUDENCE AND POLICE.

On Poisoning with the Sulphurets of Arsenic. (*Journal de Chimie Medicale et Journal de Pharmacie, passim.*) Several memoirs have lately appeared in the Parisian Journals on the subject of poisoning with the sulphurets of arsenic; and as they explain some facts which have long appeared unintelligible, we shall present a condensed view of the whole. Till very lately it was believed, that, as the artificial sublimed sulphurets are much more poisonous than those of natural origin, some essential difference existed between them in chemical composition. M. Guibourt, however has completely shown the cause of the differences in their physiological effects. For he has found that the artifical sulphurets always contain a large proportion of oxide of arsenic, sometimes so much as 96 per cent. This observation has been more recently confirmed by M. Courdemanche; and we may add that we have seen the cakes of sublimed orpiment lined on their concave surface with octaëdral crystals of the oxide. M. Guibourt, on the presumption arising from this difference, and from the known harmlessness of arsenic in its metallic state, ventured to hint, that the proper sulphurets, such as the native sulphurets, and that procured by transmitting sulphuretted-hydrogen through a solution of the oxide, are not

deleterious. But Orfila has contradicted this statement by positive experiments. He found that when 40, 60, or 120 grains of the pure artificial sulphuret procured by precipitation, or of the native orpiment of Hungary, or the native realgar of Transylvania, were introduced into the stomach, or into the cellular tissue of dogs, death took place in two, four, or six days, under the usual symptoms of poisoning with arsenic. It is certain, therefore, that the sulphurets of arsenic, when perfectly pure, are poisonous; but they are much less so than the oxide. Their poisonous power appeared a remarkable and anomalous fact, considering that metallic arsenic has been proved not to be poisonous in its pure state, or when alloyed with tin, or when combined with iron and sulphur in the ore mispickled or arsenical pyrites. But the anomaly has been accounted for by M. Courdemanche, who finds, (Jour. de Pharm. Mai, 1827,) that if the pure sulphuret of arsenic be boiled even in distilled water, a part of the water is decomposed, sulphuretted-hydrogen is evolved, and the white oxide of arsenic is formed and remains in solution—that this change takes place in the cold, but much more slowly,—and that it is very much accelerated by the presence of vegetable or animal principles in the water. In all likelihood then, the sulphurets are prisonous merely because they are in part converted into the oxide. These observations will also account for the statements of Hahnemann regarding the solubility of the sulphurets of arsenic in water. They are insoluble as sulphurets, but will lose weight by boiling, because they are decomposed.—*Ibid*,

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Poisoning by phosphorus.—(*Mem. de la Soc. Med. d'Emulation.* Tom. IX.) On the 24th April 1824, a young man, 28 years of age, swallowed half a grain of phosphorus mixed with very hot water. Feeling no effect, he took three days after a grain and a half in the same vehicle at a single dose. He breakfasted almost immediately after, and experienced no remarkable symptom till five, when he had no sooner swallowed some food, than he complained of violent pains of the stomach and belly. These were soon followed by incessant and painful vomiting, and abundant discharges from the bowels during the night. On the following day these symptoms were aggravated by violent contractions of the belly. Emollient injections produced neither excretion nor relief. The patient, however, followed his ordinary pursuits; and it was only on the 4th of May (after a full week) that he communicated to M. Worbe the circumstances of his complaints. The epigastrium was then extremely painful to the touch, the abdomen was very tense, and its muscles strongly contracted; and he was unable to continue out of the horizontal posture. The features had an expression of sadness, languor, and wavering; the eyes were heavy, and the conjunctiva and skin of a strong yellow tint. The respiration, however, was natural, the pulse was only a little hard, and the tongue and mucous membrane of the mouth were unchanged. *Membra generationi inservientia necquaquam affecta.* The remedies were leeches to the epigastric region, the warm-bath, fomentations, and emollient cataplasms, mucilaginous injec-

tions, and for drink gum-solution in abundance. The leeches were not applied till noon. At ten in the evening the patient was delirious, convulsed, and unmanageable, but carried his hands instinctively to the epigastric region. A physician summoned at seven the next morning ordered to each elbow fifteen leeches, which procured a good deal of blood. M. Flourens, introduced by M. Worbe, recommended leeches to the head; and they were accordingly applied. The condition of the patient, however became hourly worse. The urine escaped involuntarily; the alvine discharges became frequent and copious, with flabbiness of the muscles; the beats of the heart became weak, and those at the wrist were no longer perceptible. The surface, which was now intensely yellow, became covered with a cold sweat, which was most abundant on the forehead; the extremities became cold, and death took place at three in the morning of the 6th, the second day of his application to M. Worbe.

The external appearances after death were, yellow tint of the skin, the cutaneous veins of the belly and upper part of the thigh prominent, and the skin of these parts checkered with livid spots, sugillations, and venous impressions. The scrotum was bluish and phosphorescent, according to the observation of M. Bogros. The chest contained much blackish serous fluid; the lungs were gorged with blood; the heart was soft, collapsed, and contained little blood. The muscular tissue only of the stomach was inflamed; the other membranes of the stomach and duodenum were pale and flaccid, and gas was developed in their submucous cellular tissue. The cardiac and pyloric orifices presented black or rather slate coloured patches which might be compared to the blood-shot spots seen on the conjunctiva. All the intestines were tympanitic, but contained little fluid. The bladder was sound, and contained four ounces of urine. Permission to examine the brain could not be obtained.

M. Worbe and M. Bogros killed two dogs, one of 7, the other of 18 pounds weight, by giving the first half a grain, and the second a grain and a half of phosphorus dissolved in hot water. In the former dog the cardia and pylorus presented the black spots observed in the stomach of the subject above-mentioned, but the brain and its appendages were sound. In the second several ecchymosed spots were found in the cellular fat, contiguous to the base of the ventricals of the heart, and the surface of the auricles. The villous membrane of the alimentary canal, especially that of the stomach, was folded or contracted, and easily detached; and the tube was abundantly filled with blackish matter, as far as the cœcum. The veins of the brain were filled with black blood; the membranes were injected, and the pia mater was ecchymosed.—*Ibid.*

Statistical Account of the Lunatic Asylum at Aversa in the kingdom of Naples. (*Archives Generales de Medecine, Octobre* 1826.)—M. Esquirol has published from documents supplied by Dr. Latrillo, one of the resident physicians of the Lunatic Asylum at Aversa, an interesting account of many particulars relative to the Statistics of Insanity as it prevails in the

kingdom of Naples. The documents embrace a period of ten years, from 1814 to 1823 inclusive. The following are the principal results at which M. Esquirol has arrived on comparing the reports of Aversa with those of other European asylums.

The number admitted in ten years was 1725, or 172½ annually, which is a much less proportion to the population than is observed in France and England. The males were to the females in point of number as five to two: in France the proportion of the sexes is nearly equal: in St Petersburg and Moscow it is as five to four. These facts show that it is not the climate which renders insanity less frequent among females in Naples, but their inferior importance in society, and consequently a less frequent exposure to the moral causes of the disease. The season during which the admissions have been most frequent is midsummer, and the months immediately preceding and immediately following, namely, May, June, July, and August. This result accords with what has been observed in France and England. Among the causes the first noticed is hereditary tendency. This appears, however, to be a very rare cause in Naples, for, if the records are correct, only 20 cases of the 1725 were cases of hereditary insanity. Fever is a very common cause in that country. Love has been the cause of about a twelfth part of the cases, being a much larger proportion than in France. "It is long," says Esquirol, "since love has ceased to break hearts and turn heads in France." Of the various forms of insanity *Monomania* has been by far the most frequent. Eight hundred and forty-three where of that description. The cures at Aversa have been three-tenths of the males affected, five-seventeenths of the females. This proportion is not so favourable as in the chief asylum of France and England. At the Salpêtriére and Bicêtre the cures amount to two-fifths of the whole. The greatest number of cures were effected at Aversa, as in France, during the months of September, October, November, and April. The Relapses have been 92, and were most frequent among the male patients. The latter fact accords with Esquirol's own experience; but in Paris the relapses are not so frequent. The mortality has been very high at Aversa,—being no less than a full fourth of the whole. At Paris it is only a thirteenth. The greatest proportion of deaths has been in the months of November, December, and January. The causes of death have been chiefly exanthematic fevers, dry gangrene, rabies (?), very rarely palsy, which is the cause of one half of the deaths in Paris. In 1816 many of the patients were carried off by typhus,—a new proof of the incorrectness of the old idea, that insane people can resist exposure to the causes which produce ordinary disorders in the sane.—*Ibid.*

Poisoning by Arsenic and Laudanum.—Mr. Scott, of Newington Causeway, has stated a case in the last Number of the Medical and Physical Journal, the object of which will be apparent in the sequel.

A young woman, aged 16 years, swallowed, by her own account, "fifteen penny-worth of laudanum and half a tea-cupful of arsenic," of which

she died in six hours. Mr. Scott did not arrive till near the fatal period, and found her writhing under great torture. She had vomited severely for two hours; and dark offensive motions had been frequently discharged from the bowels. Mr. S. proceeded to work the stomach pump, and two quarts of warm water were twice thrown in and withdrawn by means of that instrument. Very little indeed of the arsenic was dislodged, and as the patient was now in articulo mortis, the process was discontinued. In ten minutes more she expired. The stomach, on being opened, was found to contain about 20 ounces of fluid, which had been injected by the pump. On removing this fluid, the surface of the organ presented a universal vermilion blush, with brownish red patches scattered here and there, chiefly in the pyloric portion. These patches were somewhat pulpy—loose in texture—gelatinous in appearance—and more glossy than the surrounding parts—in fine, "they were portions of the mucous membrane in a state of disorganization," and might be easily detached by pinching with the finger and thumb, leaving the muscular coat denuded. "*Near the extremity of the stomach, lay two masses of powdered arsenic, enveloped in a sort of reddish jelly*, which doubtless consisted of the mucous membrane disorganized by the contact of the poison." These were scraped off with a spoon—the quantity might be about half an ounce.

Here Mr. S. properly invites the attention of the profession to the fact that, vomiting, assisted by copious dilution, *during two hours*, had not detached the arsenical powder from the surface of the stomach; and so entangled was the poison with the softened mucous membrane, that he believes no action of the organ itself could have separated it. The injection of a strong current, by means of the syringe, had even failed to detach the mineral. From this Mr. S. concludes, and we think with justice, that the efficacy of emetics, in dislodging arsenic from the stomach, is confined to a limited time after the poison has been swallowed, though that limit is not yet ascertained, being probably influenced by the quantity swallowed, by the quality and volume of ingesta, and other accidental circumstances. In the absence of all positive information, on this point, Mr. Scott queries, would it not be the safest practice to resort, at once, to the stomach-pump in these cases? Mr. S. here alludes to the superiority of the stomach-pump over any apparatus acting on the principle of the syphon, in consequence of the great propelling power of the former, by which arsenic might be dislodged from localities in the stomach. He might have added, that the activity of the suction power (speaking vulgarly) also gives the pump an advantage over the syphon.—*Johnson's Medico-Chir. Rev.*

Poisoning by Belladonna.—Two interesting cases of this accident happened in the practice of Messrs. Adams and Smith, surgeons, of Torres, N. B. of which the following are the particulars. At 5 P. M. on the 5th November, Mr. Smith was summoned to the assistance of two boys, (brothers) one of two, and the other of three years of age, who, in company with a third child, had eaten of the berries of the Atropa Belladonna, about one or two

o'clock of the same day. The elder boy went to school, as usual, but when called up to his lesson, he could not speak. He laughed immoderately, and kept grasping at imaginary objects. He was, therefore, sent home; but the laughing continued, and his silence was changed into immoderate and incoherent loquacity, with constant bodily motion. Suspicions of the accident were quickly formed, and Mr. S. was sent for. He found the boy laughing and talking alternately—extremities in violent, and almost constant motion—eyes fixed—pupils dilated and insensible to light. Twenty grains of sulphate of zinc were given at twice, in the course of a few minutes, and the action of vomiting promoted by tickling the fauces with a feather. A great deal of reddish matter, containing pieces of the berries, was thrown up. By this time the younger boy was exhibiting the very same symptoms, and the same medicine was exhibited, but only in half the quantity. He threw off the same materials as the other. Solutions of tartar-emetic were given to both, but with great difficulty, as the jaws were firmly locked. The vomiting was kept up until both the boys had thrown off very much of the reddish stuff. Castor oil was then given to each. Meantime the symptoms of poisoning had increased. The muscular motions were incessant—respiration loud and croupal—faces swollen and red—incoherence the same. Enemata were repeatedly exhibited, to assist the operation of the oil—and some vinegar and water were given in the intervals. 6 *o'clock.* The elder boy's breathing is loud and stertorous—face turgid and swelled—skin cold—muscular motion less strong—pulse not perceptible in the radials. He was put into a warm bath, and while there, the jugular vein was opened, and five or six ounces of blood abstracted. Considerable relief followed. He was put into a warm blanket. The inordinate muscular movements now came on periodically; and, in the intervals, there was a strong disposition to sleep evinced by both boys; but this was resisted by the attendants, till towards the morning of the 6th, when indulgence was permitted. Strong coffee, and occasionally vinegar and water were given. 9 *o'clock in the morning of the 6th.* The elder boy has loud croupy cough. The other symptoms are still much the same in both patients. Four grains of calomel were given to each; soon after which the younger boy voided about twenty skins of berries, and in the course of the forenoon, he had several fæculent motions. At 2 P. M. the younger boy was found cold and deadly pale, with scarcely any pulse. He was immediately put into the warm bath, and the chest rubbed with flour of mustard, while assafœtida enemata were thrown up. The animal heat gradually returned—the pulse became perceptible. At six o'clock, the same state of collapse returned, and again the same means were employed, in addition to which, warm punch, and chicken-broth were frequently given. When taken from the bath, he was wrapped in warm flannels, and kept by the fire side. At half-past 7, he was much revived, and called for some drink. He is still purged, and the stools are watery. It was not till the third day (7th November) that the boys became sensible to surrounding objects. Previously to this, they were quite blind, and candles held close

to their eyes produced no effect, nor did they seem at all conscious of the light. They evinced much thirst after this, for some time, and had some slight convulsive twitches; but they gradually recovered.

Would the carbonate of ammonia have been more beneficial than the punch, when the alarming symptoms of collapse came on?—*Ibid.*

On the Treatment of Drowning and other varieties of Asphyxia (*Archives Générales de Medecine, Novembre* 1826.)—Some experiments and observations of considerable importance have lately been made at Paris on the circumstances which modify the effects of two of the chief remedies for asphyxia,—namely, insufflation of the lungs and galvanism. The author, M. Leroy d'Etioles, has succeeded in throwing some light on the variable results which have been procured by these modes of treatment by almost every person who has employed them.

With regard to Artificial Respiration, he has found that it requires much more cautious management than is generally believed; for if the air be blown into the lungs with too great force, they become unfit for their function. This he says he has found by repeated experiments on rabbits, dogs, and sheep. The following results were procured with the sheep, an animal whose lungs approach nearer in point of volume to those of man. An incision being made into the windpipe, and a silver tube secured in it by a ligature, a single forcible inspiration was made through the tube with the mouth, and the tube and ligature were immediately withdrawn. In the course of a single minute the animal became agitated and restless, made forcible efforts to inspire and expire, was then seized with convulsions, became motionless and senseless, and the pulse ceased in three or five minutes. If the carotid artery was opened during these symptoms, the arterial blood was observed to become rapidly more and more dark and venous. These phenomena were remarked in four successive experiments. In other three, made with the same animal under the same circumstances, except that the insufflation was performed less rapidly, the breathing was not arrested so suddenly, but became at first embarrassed, and gradually more and more so, till at length death took place in about fifteen minutes from the beginning of the experiment. The symptoms under which these animals died clearly indicated death by asphyxia, and the appearances in the dead body were conformable. The cause of the production of asphyxia under forcible insufflation is not very apparent; at least M. Leroy has not hitherto succeeded in throwing any light upon it. In the second variety of cases, the air-cells of the lungs were probably ruptured, and a communication between them and the cavity of the chest even established through the pleura, for the lungs could not be dilated after death. But in the first variety, in which death took place immediately, the same injury was not produced. The practical conclusion, however, to be drawn from his experiments is manifest and important,—namely, that in performing artificial insufflation, the bellows ought never to be worked forcibly; and we may add another reason for cautious management of them,—that the operator is

not perhaps always aware how great the force is which he employs in working them. With the bellows a far greater force is easily put forth than can ever be employed with the mouth, which was M. Leroy's instrument. If M. Leroy, however, is correct in considering the forcible expansion of the lungs as the cause of death, in his experiments, the objection which applies to the forcible use of the bellows in the human subject, does not apply so pointedly to forcible insufflation with the mouth; because the operator subjects his own lungs to the same pressure as those of his patient, so that his own lungs will enact in a manner the part of a safety-valve, provided he is not superior in strength of chest to his patient.

The other topic which forms the subject of M. Leroy's remarks is the application of Galvanism to the treatment of asphyxia. It is well known, that, although this remedy has been sometimes found singularly useful, it has very often failed, and not unfrequently it has even appeared to do harm. M. Leroy thinks he has discovered the cause of its failure. When the galvanic current is applied in such a way as to affect the diaphragm, it is almost always applied continuously, in which case the contractions are irregular, and do not constitute a natural inspiration. But if the current is suspended as soon as the muscular contraction begins, then a complete inspiration is produced, and the regularity of the subsequent expiration is not interrupted: on connecting the galvanic circle, a new contraction is produced, which in like manner causes a natural inspiration, if the circle is again interrupted. The plan recommended by M. Leroy, and adopted in his experiments, is to insert a fine acupuncture needle between the 8th and 9th ribs, till it reaches the attachments of the diaphragm, for which purpose a length of a few lines is sufficient,—and then alternately to complete and interrupt the galvanic circle, by touching the needle with one conductor at the proper intervals, while the other is kept permanently in the mouth.—*Edin. Med. and Surg. Journ.*

SURGERY.

Employment of Galvanism in the Reduction of Strangulated Hernia and Internal Strangulations. (*Archives Gen. de Med. Octobre* 1826.) The following curious experiments are well worthy of the attention of surgeons, although the practical application of which they are susceptible has not yet been made. It has been found that when one pole of a small galvanic battery is connected with the mouth, and the other with the anus, the intestines are thrown into increased action, and in a few minutes one or more alvine evacuations are caused. Reasoning apparently from this fact, M. Le Roy d'Etiolles was led to conceive that the topical application of galvanism might be of use for effecting the reduction of strangulated hernia, when other means could not be employed on account of their slow action, or the irritation they produce, or the increase of the fœcal matter which they are apt to cause in the strangulated portion by stimulating the superior part of the gut. He accordingly proceeded to try the accuracy

of the idea so far as it could be determined by experiments on animals. He first, however, repeated upon himself the experiment already mentioned with the poles of the battery in the mouth and anus; and he found that, with a trough-battery of twelve pairs of inch-and-half plates, he felt a sense of slight heat at each point of contact, faint flashes of light, movements in the bowels without any general shock, and in a quarter of an hour a sense of weight in the rectum, followed by one or two evacuations. Any considerable augmentation of the number of plates produced so strong a sensation of heat that he could not endure the contact of the wires except for an instant; but after repeated shocks communicated in this way, the bowels were moved in fifteen minutes with nearly the same antecedent phenomena, and without any injury to the health.

He next drew out a loop of intestine from the belly of a rabbit through an incision in the parietes, and repeated the experiment just described with five or six pairs of plates. The portion of intestine, which had been previously immoveable, immediately exibited a brisk undulatory motion, without any general shock or contraction of the muscles of the parietes; and the motion continued some time after the galvanic circle was interrupted. If a ligature was applied round the protruded gut, the movements were less brisk, but still obvious, and they evidently tended to free the gut from the ligature. If the conductor, which in the foregoing experiments had been placed in the mouth, was applied to the protruded gut, the gut immediately contracted at the point of contact; and if both conductors were applied to the protruded gut, the contraction which took place was much greater, and the fœcal matter was pushed forcibly towards the superior and inferior parts of the intestines. When this effect was produced on several successive portions of the protruded gut, its contents were gradually discharged upwards and downwards, and its diameter was very much diminished. When the protruded gut, containing fœcal matter and gases, was tied with a ligature to imitate strangulated hernia, the foregoing operation soon reduced its diameter to a third or a fifth of what it was originally, so that the gut could be easily pushed through the ligature. When the ligature was applied so as to compress only a half or a third part of the circumference of the gut, the strangulated portion, after the action of galvanism, receded spontaneously. The very same results were procured when the integuments were brought over the protruded gut, and the galvanic fluid was transmitted to it through acupuncture needles. When the gut was tied with a ligature, and then returned into the cavity of the abdomen, the portion operated on was found sensible to galvanism twelve hours afterwards.

The author infers from these experiments, that in volvulus and some other varieties of internal intestinal obstruction, the obstruction may be removed by the brisk peristaltic action which galvanism excites throughout the whole intestines when transmitted from the mouth to the anus; and that in like manner some forms of strangulated hernia; particularly those in

which the reduction is prevented by the accumulation of fœcal matter, may be brought by the application of galvanism through acupuncture needles into such a state as to admit of easy reduction by the *taxis.—Ibid.*

Domestic.

A Case of Scirrhus Pancreas.—Dr. J. Augustine Smith has recently examined a case of the above kind. The patient was an elderly woman from the country, where she had been treated for a diseased liver. Becoming worse, she visited New-York, to obtain further medical advice. Here she was seen by several practitioners, who all considered the symptoms as extremely obscure. One, indeed, suspected the real nature of the disease; but in him it was nothing more than a fortunate conjecture. She complained of constant pain, generally in the lateral portions of the umbilical region, although it occasionally extended upward. She was emaciated, and took opium to relieve her sufferings, habitually, but not largely. She was feverish—her appetite was pretty good—she did not complain of indigestion —retained a considerable portion of her strength, and her bowels were tolerably regular.

She died after remaining a few weeks in the city, no remedies which could be devised affording any alleviation of her complaint. Nothing could be more completely jaundiced than her body was after death. Upon opening it, the liver was found to be hard, somewhat shrunk, and of a bluish ash-colour. The gall-bladder was enormously enlarged, and resembled a portion of intestine filled with dark coloured fluid. There was, perhaps, a pint of yellowish serum in the cavity of the peritoneum, and also some jelly of the same hue. The pancreas were about an inch and a half thick, and of a cartilaginous hardness. The intestines, &c. were healthy. Although her limbs were wasted, internally there was more than the usual quantity of fat.

A subject, also a female, exhibiting the same post-mortem appearances, was brought into the College of Physicians and Surgeons during the last winter. Nothing of the previous history of this person was known. For cases of this character there is of course no remedy; but they deserve consideration in this respect, that they show why our prescriptions must sometimes fail where the liver is the organ ostensibly affected.

Case of Injury of the Spine. By David Kirby, Student of Medicine, Lebanon, Penn.—Recoveries from injuries of the spine being extremely rare, a relation of the following case may not prove unacceptable to the medical public, inasmuch as it evinces the immense utility of *issues* in the treatment of accidents of this kind, occurring to this important part.

John Murphy, a native of Ireland, aged about thirty-five years, in the summer of 1823 fell from the overshoot of a barn, about three miles from

this place, upon the tongue of a waggon. The violence which had been received, principally upon the back, produced a temporary suspension of his intellectual functions. The ensuing morning Dr. M'Neil, who then resided but a short distance from the place where the accident occurred, was requested to visit him. Upon examination a considerable contusion was observed at the space between the spinous processes of the first and second lumbar vertebræ.

A total paralysis of the inferior extremities immediately followed the accident. There was a suppression of urine, as well as an inability to pass any alvine evacuation by his voluntary efforts. Extensive inflammation from the violence of the injury having been apprehended, general antiphlogistic means were resorted to. His urine was ordered to be drawn off by a catheter, and his bowels to be kept open by enemas. By the energetic employment of bleeding, together with the ordinary measures used to subdue inflammation, the inflammatory symptoms, which had been considerable, were much diminished, but the paralytic state of the inferior extremities continued without any evident amendment.

An issue was now established over the region of the injured part, and frictions with a rubefacient liniment, were instituted upon the thighs and legs. About six months after the occurrence of the accident, a tingling sensation, with occasionally slight spasmodic twitchings, was experienced in the paralysed limbs.

Sensation of these parts, which had been previously to this time entirely absent, began to return in some measure: his bladder had so far recovered its tone, as to have rendered him capable of discharging its contents without the use of the catheter. Injections per anum were no longer necessary. He has now regained the power of motion in his lower extremities, so much as to be enabled to walk with the aid of a staff. His urine is sometimes unusually turbid, and its consistence so thick as to occasion difficulty in passing it, without the use of his favourite beverage, gin.

Case of Delirium Tremens. By Dr. P. JORDAN, Lebanon, Penn.—John Kreider, aged thirty years, and residing two miles from this town, on the 3d of May last, received a contused wound on the superior part of the foot, from a piece of hot iron, propelled against it from a blacksmith's anvil, which divided the anterior tibial artery. There was an immediate flow of blood from the wounded vessel, but not so profuse as might be expected, owing, probably, to the contused state of the artery, at the place of division and adjacent parts.

The vessel was secured as soon as possible, by my friend Dr. Gloninger. The ligature employed by him consisted of leather; and was removed by the ulcerative process, on the fourth day.

Kreider is a man much addicted to habits of intemperance, and, we believe, was intoxicated at the time of receiving the injury. Nourishing diet and wine were ordered, but he peremptorily refused to use either for several days; which, together with the constitutional irritation preced-

ing the injury, caused *mania atemulentia.* Wine, carbonate of ammonia, together with opium and camphor in small doses, and an infusion of humulus lupulus, were then prescribed; but as these produced no impression on the disease, and his constitution suffering much from excessive restlessness, during five days, *ten grains* of opium were given him at once; which procured a sound sleep of twenty-four hours continuance. When he awoke, all marks of mental aberration had vanished; and his mind became perfectly composed. But during the continuance of his intellectual disturbance the wound assumed a gangrenous appearance and discharged a very unhealthy pus. A poultice of yest was applied to it. Under this treatment it assumed, in a day or two, a very healthy aspect; granulations arose from every part of its surface, and cicatrization went on rapidly. He is now entirely recovered from the injury he sustained, and discharging the usual duties of his calling.

The only important practical precept, in my opinion, deducible from the preceding case, is, the value of large doses of opium, in cases of intellectual derangements from the excessive potation of ardent spirits, and the inutility of a temporising practice in such cases.

Report of Experiments recently performed at the Jefferson Medical Hall, relative to Venous Absorption from the Cavity of the Stomach.—Dr. C. Luzenburg, assistant in the department of Practical Anatomy, had been engaged in performing experiments, at the suggestion of Professor Rhees, for the purpose of determining the influence of the nerves on the function of absorption generally.

For this purpose, both extremities of the stomach were included in ligatures, together with the nerves which the organ receives from the eighth pair, and from the solar plexus. The prussiate of potash was under these circumstances, abundantly absorbed and detected in various parts of the system.

I then suggested to Dr. L. the following experiments, for the purpose of determining the comparative importance of the veins and the lymphatics, in regard to the function of absorption from the cavity of the stomach.

The animals employed were cats. The abdomen was opened, and the pyloric and cardiac extremities of the stomach were included in ligatures and divided. The peritoneum was then dissected away from around the coronary artery of the organ, and also from around the principal vein. All the peritoneal attachments were then removed, so that the organ retained no other connexion with the system than through the medium of one artery and one vein. By these the circulation was observed still to be kept up. Such vessels as bled on being divided were secured by ligatures.

The prussiate of potash, in solution, was then, by a tube, carefully conveyed into the stomach, so as to suffer none to fall into the cavity of the abdomen. The incision was finally closed by sutures, and the animal was suffered to live two and a-half hours. On its being killed at the end of this time, the following interesting phenomena were manifested:

On applying the tincture of the muriate of iron to the blood of the vena portæ, it immediately assumed a strong blue colour. On applying it to slices of the liver, remarkable blue patches were instantly obvious. The same occurred when it was applied to the heart. It was most striking, however, in the interior of the kidnies. When these organs were divided, and their surfaces touched with the tincture, they instantly became intensely blue, as if covered with a thick pigment. When the external surface of the stomach was dashed with the tincture, it exhibited very little of the blue tint, a decided proof that the solution of the prussiate had not transuded through the stomach.

The above experiment was four times repeated. Three times it was done by Dr. Luzenburg, and once by Mr. Mailliard, and always with the same remarkable results.

With a view to determine the comparative activity of the lymphatic absorbents, I then requested the above gentlemen to perform the following:

The principal arteries first, and then the principal veins going to the stomach, were secured by ligatures, so that the sanguineous circulation was feebly carried on by the small vessels remaining. The prussiate was then introduced as before, and the animal having been suffered to live the same length of time, was killed. The most careful application of the test, however, could no where detect the prussiate, except in the strangulated veins of the stomach, where it was found in obvious quantity, they being much distended with blood. This experiment was repeated by both Dr. Luzenburg, and Mr. Mailliard, and with results perfectly uniform.

It might be objected to the last experiment, that the tying of all the principal blood-vessels of an organ should so impair its organic functions that no absorption could be expected to take place; but this objection is at once obviated by the fact, that the substance had entered the veins and passed as far as the ligatures; certainly, then, this function should not have been interrupted in the lymphatics, had it existed in them before the experiment.

The first series of experiments is similar to those performed by Majendie, Gmelin, and Tiedemann, and analogous to some performed in this city by Messrs. Lawrence and Coates. They are interesting, however, as confirming, in the most satisfactory manner, their results, which by some are still doubted as being conclusive. The second is, I believe, unique, and in my mind, renders it quite certain that, whatever may be the office of the lymphatics in the textures of the organ, absorption from the cavity of the stomach is exclusively effected by the veins, and that it is very copiously effected by them. Probably the same is true with regard to the intestinal canal.

The experiments were witnessed by several of my pupils, and will, I am confident, be amply confirmed by all who are disposed to repeat them.

The inferences which are to be drawn from these facts are certainly not a little interesting, in relation to the function of digestion. If substances foreign to the animal tissues, and which cannot be assimilated, are thus

abundantly taken up and conveyed into the circulation, is it not absolutely certain that all soluble or fluid alimentary substances are absorbed with even greater avidity? A very large proportion of our aliment, perhaps a moiety, is either fluid or soluble in water, and when taken into the stomach, needs not to be acted upon by the gastric juice, or any other agent, to qualify it for venous absorption.

We very well know that the fluid parts of meat are highly charged with sapid and nutrient principles. These are expressed by mastication in great quantity; and if the prussiate of potash be absorbed by the veins of the stomach, certainly we may be assured that they are drunk up by the same organs. This is the more credible, when we recollect that the sensation of renewed vigour and strength is felt almost immediately after taking food.—Sugar is another substance highly nutrient, and completely soluble in water. It is capable of sustaining life for a very considerable time, uncombined with any other article. The fattening of the southern negroes on the saccharine juices of the cane stalks is well known. I think it must be admitted that at least a very considerable portion of this substance is absorbed by the veins of the stomach.

The same may be said of mucilages, extractive matters, and perhaps oils. It will be recollected that Haller detected the latter in the blood of the vena portæ.

The aliment of some herbivorous animals consists entirely of extractive and mucilaginous matters, obtained by maceration from the vegetable substances on which they feed. Hay, upon which horses and kine will even fatten, very readily yields all its sapid and nutrient parts to water. Farmers very well know that if their hay be drenched by repeated showers, after it is cut, it is scarcely worth the making. When hay has been very scarce I have been informed that, for the sake of economy, hay tea is sometimes prepared for cattle, in which is dissolved every thing nutrient which the plants contain, and of course there is no waste. On this cattle will fatten, if they are furnished with cut straw for producing the usual distension of the stomach, and which yields no nutriment.

Now, is it to be supposed that this decoction of hay is acted upon by a gastric juice, converted into chyle, and then absorbed by the lacteals? Indeed we are assured by direct experiment that these substances are taken up in great quantity by the intestinal veins of these animals. M. Flandrin ascertained that, in the horse, the venous blood of the small intestines possesses a strong herbaceous taste, if obtained from the animal soon after it has taken food.

How such fluids, absorbed by the veins of the stomach, may become assimilated it is easy to conceive. Not a particle of blood from the stomach nor the intestines enters the general circulation till it has permeated the liver, the most important gland in the animal economy. Here not only are the nutrient matters assimilated, but the crude and saline substances which reach the gland from the stomach in the first stage of digestion, probably furnish the materials of the bile, which fluid being then abundantly

secreted, is conveyed to the duodenum, there to meet the residue of digestion, and to exert an important influence in the preparation of the solid aliments, as well as in stimulating the intestinal canal.

We may infer, from the above, that some of the constituent principles of the bile are furnished by fluids which have never entered the general circulation, but are the feculent parts of such substances as are absorbed by the veins. We have thus another reason, also, why bile is more copiously elaborated, from the time that digestion commences. It also enables us to explain the variable nature of that fluid, and also the fact, that its constituents cannot all be detected in the circulating blood. Thus, too, we confer upon the liver an office so long denied to it, corresponding to its magnitude, complexness of structure, and pathological importance; for, if our inferences are correct, it is one of the most important of the assimilating organs, since the elaboration of bile, from the fluids absorbed, is especially subservient to their animalization.

It will be recollected by those into whose hands an Essay on Digestion, published by me a short time since, may have fallen, that, in it, and in the supplement which followed it, I advocated the following principles in regard to that function :—

1st. That, of the substances taken into the stomach, some, and especially the fluid aliments, are taken up by the veins and conveyed to the liver, where they are further assimilated previously to being added to the circulating blood.

2d. The solid aliments which remain are slowly macerated and dissolved in the stomach, not by a chemical agency, since the constitution of the secreted fluids of that organ does not warrant the supposition, and because, also, the solution is not effected when the nerves of the stomach are divided, nor when these fluids are removed from the stomach. It is accomplished probably by a vital influence, conferred upon its fluids by the nerves of the stomach.

3d. The solid aliments thus rendered semi-fluid on reaching the duodenum, and having been acted upon by the hepatic and pancreatic secretions, are absorbed by the lacteals, not becoming chyle, however, till they have entered these small vessels. Thus, the constituents of the blood, as furnished by digestion, are immediately derived from two sources, a circumstance by no means inconsistent with the compound nature of that fluid.

N. R. S.

OBITUARY.

Amongst the desolations which time has produced, we have to record the death of the late highly lamented Dr. Samuel Wilson, of Charleston, South Carolina. This event took place on the 15th March of the present year. Dr. Wilson was born in Charleston, January 26, 1763. After acquiring a competent knowledge of classical learning, he began the

study of medicine, under his father, Dr. Robert Wilson, who was for many years an eminent practitioner in that city. In 1784, he visited Europe and studied for two years in Edinburgh, under the distinguished professors of that University; here he became acquainted with some of the most distinguished medical practitioners of the United States, and retained to his last days, a fond recollection, and an interesting correspondence with the companions of his youth.

The whole tenor of Dr. Wilson's life was marked by high and honourable, and virtuous deportment. Skilful as a medical practitioner, he commanded the esteem and confidence of his fellow-citizens to an unlimited degree. Benevolent and humane, conscientious in the discharge of every moral and religious duty, and with a character above reproach, he died, as he had lived, beloved, honoured, and esteemed, by all who knew him.

H.

QUARTERLY BIBLIOGRAPHICAL NOTIC ES

1. *Third Report of the Directors of the Connecticut Retreat for the Insane.* Presented to the Society May 11th, 1827. 8ov.

We shall notice this interesting report hereafter.

2. *An Address to the Guardians of the Washington Asylum, and the Members of the Board of Aldermen and Common Council.* By a Physician, in reply to an address by Thomas Henderson, M. D. Professor of the Practice of Medicine in Washington.

3. *The Domestic Physician and Traveller's Medical Companion, compiled from the practice of the most eminent Physicians and Surgeons.* By a Physician. First American, from the second London edition, with notes and appendix. Containing advice to persons, going to tropical climates, to those attacked after drinking cold water, &c. By an American practitioner. pp. 288.

4. *The Philadelphia Monthly Journal of Medicine and Surgery.* Edited by N. R. Smith, M. D. Nos. 2, and 3. In Exchange.

These Numbers continue to sustain with increased ability, the character of the first Number, noticed in our last. We recommend this work to our professional brethren as an independent and consistent Journal.

5. *The Western Medical and Physical Journal, Original and Eclectic.* Nos. 2, 3, 4, 5.

6. *The Medico-Chirurgical Journal.* Edited by *James Johnsnn*, M.D. No. 13. In Exchange.

7. *American Ichthyology.* By *C. A. Lesueur.* Published in numbers, each number with two coloured plates, price 40 cents. Nos. 1, 2 and 3 published. 8vo. New Harmony, Indiana.

8. *Annals of the Lyceum of Natural History of New-York.* No. 9.

9. *Litterarische Annalen der Gesammten Heilkunde.* Herausgegeben vor Dr. JUSTUS FRIEDRIC CARL HECKER, Professor der Heilkunde un der Universitat Berlin, &c. &c. 18 Nos. from January, 1826, to June, 1827. In Exchange.

UNIVERSITY REGISTER.

Under the above head we propose hereafter to publish a regular account of the proceedings of the medical department of the University of our State. In a subsequent number we shall give a sketch of the history and organization of the University.—ED.

UNIVERSITY OF THE STATE OF NEW-YORK.

COLLEGE OF PHYSICIANS AND SURGEONS OF NEW-YORK.

New-York, August 17th, 1827.

The twenty-first session of the College will commence on the first Monday of November next, after which the several courses of Instruction will be continued by the respective Professors, viz.—

JOHN AUGUSTINE SMITH, M. D., *on Anatomy and Physiology.*

ALEXANDER H. STEVENS, M. D., *on the Principles and Practice of Surgery.*

JOSEPH M. SMITH, M. D., *on the Theory and Practice of Physic and Clinical Medicine.*

EDWARD DELAFIELD, M. D., *on Obstetrics and the Diseases of Women and Children.*

JOHN B. BECK, M. D., *on Materia Medica and Medical Jurisprudence.*

JOHN TORREY, M. D., *on Chemistry and Botany.*

At extra hours, and without additional expense to the Student, Lectures will be delivered on Medical Jurisprudence and Botany, by the Professors of those sciences.

In the various departments of the College every facility is afforded for the acquisition of professional knowledge.

The anatomical Museum, heretofore one of the most extensive in the country, has been recently still farther enlarged by the addition of private collections and the acquisition of new preparations; the specimens of morbid anatomy particularly, are daily increasing. In practical anatomy the opportunities will be commensurate with the utmost wishes of the Student.

In the Obstetrical Department cases will be furnished to such Students as may desire them, to be attended under the direction of the Professor of that branch.

The Trustees cannot omit this opportunity of expressing their obligations to the Regents of the University and to the Legislature, for the care which they have recently manifested for the science of Medicine in general, and for the Medical Institutions of this State in particular. At their last session, the latter body passed, nearly unanimously, the statute which will be found below. It is now published for the information of Medical Students, who will observe, that the "Diplomas" referred to, include those which emanate from Medical Societies, as well as those which are conferred by Medical Colleges.

By order of the Board of Trustees,

JOHN WATTS, Jun. M. D., *President.*
NICOLL H. DERING, M. D., *Registrar.*

*** "Be it enacted by the People of the State of New-York, represented, in Senate and Assembly, that all Diplomas granted by authorities out of this State to individuals who have pursued their studies in any Medical School in this State, not recognised by the Laws of this State, shall be void and of no effect, as it regards authorizing the said individuals to practise Physic and Surgery in this State."*

COLLEGE OF PHYSICIANS AND SURGEONS OF THE WESTERN DISTRICT.

The lectures of this Institution will commence on the first Tuesday in October next, and will be delivered as formerly, in the following order:

On Midwifery, by W. WILLOUGHBY, M.D.

On Chemistry and Materia Medica, J. HADLEY, M.D.

On Anatomy and Physiology, J. M'NAUGHTON, M.D.

On Practice of Physic and Medical Jurisprudence, T. ROMEYN BECK, M.D.

On Surgery, J. DELAMATTER, M.D.

Professor Delamatter was formerly attached to the medical institution in Berkshire, (Mass.) He is now a resident professor at Fairfield.

The buildings of the institution have been enlarged since the last session A new stone building of 3 stories high, and containing 36 apartments, has been erected for the purpose of accommodating the students with lodging rooms. The lecture rooms, laboratory, library, and museum, in the college, have also been enlarged and improved.

JAMES HADLEY, *Registrar.*

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* From the foregoing law, together with the following extract from a circular recently published, it appears that the question in relation to medical licenses in this State, is finally settled.

"*Rutgers' Medical College.*

"The faculty having recently obtained the opinion of counsel, relative to the exact nature of the restriction imposed by the law passed against

INTELLIGENCE.

A new Dispensary has recently been established in the northern part of our city, in which the following officers have been elected.

William Torrey, President.

William M. Johnson, First Vice President.

Thomas Stokes, Second Vice President.

John Rogers, Third Vice President.

Levi Kidder, Secretary.

James N. Wells, Treasurer.

Attending Physicians—James Stewart, M.D. John L. Suckley, M.D. J. Brinkerhoff, M.D. Chas. A. Lee, M.D.

Consulting Physicians—Thomas Boyd, M.D. Charles Drake, M.D.

Consulting Surgeons—Valentine Mott, M.D. Steph. C. Roe, M.D.

Samuel L. Griswold, Apothecary.

Read's Apparatus.—We are happy at having it in our power to inform the profession, that Mr. Richard Wood, of this city, the American publisher of Johnson's Review, has received for sale from the maker in London, a number of these instruments, adapted to the various uses noted in Dr. Moore's communication on the subject, in this Number of our Journal.

Dentistry.—Mr. Charles Newton, a skilful and ingenious dentist of this city, has invented an instrument, for which he has taken out a patent, intended for facilitating the operation of plugging decaying teeth, by preventing the saliva from flowing over the tooth during the operation. It is very neat, and easy of application, and appears to be well adapted to the purpose for which it is intended.

In compliance with the request of Dr. Zollickoffer, we are happy to give insertion to the following account of the proceedings of a distinguished and useful foreign asociation.—Ed.

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this institution, at the last session of the Legislature, find that they will not be able, under their present arrangement, as they believed and announced in their circular, to confer, along with their diploma, the privilege of practising medicine in the State of New-York."

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"By order,

"VALENTINE MOTT, M. D."

In addition to the foregoing it may be proper to state, for the information of students, that the only valid licenses to practise physic in this State, are those which emanate either from the University or from the State or County Societies. Any degrees, therefore, which may be conferred upon students of this state by *literary* Colleges, either in or out of the State, are only *honorary* in their character, and cannot give the holder any legal right as a practitioner.—*Ed.*

MEDICO-BOTANICAL SOCIETY OF LONDON.

The anniversary meeting of this Society was holden on Tuesday, the 16th day of January, 1827. Sir JAMES M'GRIGOR, M.D., F.R.S., K.T.S. President, in the chair.

The various reports of the Treasurer, Secretary, Librarian and Conservator were laid before the meeting, and thanks were ordered to those officers for their exertions during the past year.

The President addressed the Society at considerable length, and began by adverting to the great loss the institution had undergone in the death of His late Royal Highness the Duke of York, who had been pleased to extend his patronage to it, from a conviction of its utility to the Medical officers of the army. He alluded to the numerous and valuable accessions the society had made during the past year, and to the honourable mention made of the Society by several foreign journals of eminence and science. He observed that the annual custom of distributing a gold and silver medal to the authors of the most valuable communications on the subjects of its inquiry, at the same time that it rewarded the successful, awakened in others a similar desire of distinguishing themselves. He informed the meeting that their council had awarded, in which he had no doubt they would concur, the Society's gold medal to their worthy director John Frost, Esq. F.S.A. F.L.S. for his communication on the Ipecacuanha; and the silver medal to John Peter Yosy, Esq, for his paper on the Menyanthes Trifoliata.*

The President having respectively invested these gentlemen with the same, they severally returned their thanks to the Society for the honour that had been done them, in thus singling them out as marks of their favour; and to the President for the handsome manner in which he had conveyed the sense of the Society on the subject.

The ballot for the officers and council having closed, and the lists examined, the following gentlemen were by the Scrutators declared unanimously elected.

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* The Menyanthes Trifoliata, or Buckbean, is indigenous to the United States, as well as Europe. The plant as well as the root of this production is intensely bitter. Professor Bigelow says, "we may regard it as one of the numerous vegetable bitters abounding in our country, which are equal in strength to imported articles of this class, and which may hereafter lessen our dependence on foreign drugs." I hope the American medical public will ere long be placed in the possession of the remarks of the distinguished J. P. Yosy, Esq. upon this subject, which are no doubt of a nature truly interesting; as also the communication of the learned and indefatigable John Frost, Esq. F.S.A. F.L.S. *Zollick.*

President—Sir James M'Grigor, M.D. F.R.S.

Vice-Presidents—William Thomas Brande, Esq. F.R.S. Prof. Chim. R.I.; Sir Astley Cooper, Bart. F.R.S.; Sir Alexander Crichton, M.D. F.R.S.; Sir Benjamin D. Urban, K.C.B. F.R.S.; Sir Benjamin Hobhouse, Bart. F.R.S. F.S.A.; Edm. Thos. Munro, M.D.

Treasurer—Hy. Drummond, Esq. F.S.A.

Director—John Frost, Esq. F.S.A. F.L.S.

Auditor—William Newman, Esq.

Secretary—Richard Morris, Esq. F.L.S.

Professor of Botany and Materia Medica—John Frost, Esq. Director.

Hon. Librarian—Doctor Munro, V.P.

Professor of Toxicology—G. G. Sigmond, M.D. F.L.S.

Counsel of the College and Secretary for Foreign Correspondence—John Peter Yosy, Esq.

Council with the above—Hy. Brandwith, M.D. F.S.A.; Peter Cosgreave, M.D.; Thomas Gibbs, Esq. F.H.S.; Thomas Jones, Esq.; Wm. Yarnell, Esq. F.L.S.

The thanks of the meeting having been voted to the Vice-Presidents, Director, Auditor, and Council for the past year, it was moved by Hy. Brandwith, Esq. and seconded by William Newman, Esq. and resolved unanimously, that the cordial and grateful thanks of the Society be given to Sir James M'Grigor, President, for the great interest he had displayed in furthering the objects of the Society, and for the dignified and impartial manner in which he had filled the chair at this anniversary meeting, and also, that a copy of this resolution be presented to him.

On the 9th of February, the Professor of Toxicology delivered an introductory lecture on that subject, and the Professor of Botany offered some remarks on a new partly essential oil, termed Jausa oil, lately arrived from the East Indies.

TO READERS AND CORRESPONDENTS.

1. Our next will contain communications from Professor Torrey, Drs. Ludlow, Saynish, S. W. Moore, Lee, &c. &c.

No. XXIV. will be published on the 31st of December.

ERRATA.

Vol. VI. No. 2, p. 188, line 11, *for* aponeurosis *read* aponeuroses.

Page 188 line 21, *for* these too *read* these two.

—— 192 last line of note, *for* the or tubercle spine *read* the spine or tubercle.

—— 201 line 12, *for* double femoral herniæ *read* double femoral hernia.

—— 208 line 1, *for* similar direction *read* semilunar direction.

—— 209 line 14, *for* anteriorily *read* anteriorly.

—— 212 line 9th from the bottom, *for* right external iliac *read* right iliac.

—— 212 line 24th from the top, after the word pelvis *insert* minor, *thus* pelvis (minor.)

Vol. VI. No. 3, page 262, 6th line from the bottom, *for* his contemporary *read* who shortly succeeded him.

Page 408, 20th line from top, *for* strange *read* strong.